JUNE 1952 35 CENTS

Air Trails®

Aviation and MODEL PLANES

Fly Bouncing Bertie, Tri-winged Terror • Record Rubber Models
Scale A/2 Fokker E.1 "Eindecker" • plus Helicopters on Parade

Fly into SPRING

WITH MORE

POWER and PERFORMANCE

K&B SUPERSONIC FUELS

...a Fuel for every engine–every use!

SUPERSONIC 1000...*for Speed–IT'S HOT*	½ pts. 55¢	pts. 1.00
SUPERSONIC ULTRA GLO...*for all ½A engines*	½ pts. 50¢	pts. 90¢
SUPERSONIC 100...*for free flight, U-Control, Scale Models*	½ pts. 45¢	pts. 80¢

SWITCH TO

K&B SUPERSONIC FUELS...

GIVE YOUR ENGINE A "POWERFUL PURR"!

Test K&B Supersonic Fuel in your engine today. See for yourself the added power and performance Supersonic gives model airplane engines.

IT'S NEW!

K&B *Ever-Glo*

with LIFE STRETCHER SHIELD!

Lasts up to 5 times longer than old fashioned glow plugs.

ONLY 75¢

for the biggest value on the market.

PATENT PENDING

JUST OFF THE PRESS! The latest speed chart (wallet size). *Get yours free–send self-addressed stamped envelope to K&B Mfg. Co., Dept. A.TI*

TORPEDO K&B **ENGINES**

K&B *Manufacturing Company*

224 East Palmer Avenue

Compton, California

Which Course WILL YOU CHOOSE?

If you plan to enter the aviation industry, you have the opportunity of choosing any one of three courses at PARKS COLLEGE.

Whether you choose Aircraft Maintenance Engineering, Aeronautical Engineering, or Air Transportation, you will find a demand for your abilities when you graduate.

There is a shortage of men whose educational background enables them to lead the way in aviation. At PARKS you will acquire a well-rounded education that equips you to help fill this vital need for men with qualities of leadership.

Which Course Will You Choose?

ENTRANCE REQUIREMENTS. Applicants must be graduates from a 4-year high school, of good moral character and demonstrated ability. Next Parks Enrollment Dates — September 2-3, Fall Semester.

PARKS COLLEGE OF SAINT LOUIS UNIVERSITY

SILVER ANNIVERSARY PARKS COLLEGE 1927-1952

2062 CAHOKIA ROAD EAST ST. LOUIS, ILL.

AIR FORCE ROTC

Complete your schooling — without interruption—and receive a commission as a Second Lieutenant in the United States Air Force Reserve.

MAIL THIS COUPON *today!*

PARKS COLLEGE OF SAINT LOUIS UNIVERSITY
2062 Cahokia Road, East St. Louis, Ill.

I am interested in:

☐ Air Transportation ☐ Aeronautical Engineering
☐ Aircraft Maintenance Engineering

Name..... Age.....

Address..... Zone.....

City..... State.....

AIR TRAILS

June
1952
Vol. 38, No. 3

Cover: Grumman Cougar F9F-6—by S. C. Smith

THE LEADING MAGAZINE OF AIR PROGRESS AND AEROMODELING

Editor: Albert L. Lewis. **Technical Editor:** Alexis Dawydoff. **Editorial Production:** Carl Happel. **Art Director:** W. F. Tyler. **Editorial Assistants:** Rose Borello and Rosalba Accardi. **Special Correspondents**—Washington: Kendall K. Hoyt; West Coast Modeling: Dick Everett.

STREET & SMITH PUBLICATIONS, INC.

President.....Gerald H. Smith
Executive Vice President.....Ralph R. Whittaker, Jr.
Vice President and Secretary.....Arthur P. Lawler
Treasurer.....Thomas H. Kaiser

Walter J. McBride, Advertising Mgr., 575 Madison Ave., New York 22; Frank C. Smith, Mid-Western Adv. Mgr., 230 No. Michigan Ave., Chicago 1; West Coast Advertising Representative, Kimball, Menne Co., 2550 Beverly Blvd., Los Angeles 4, Calif.

AIR TRAILS published monthly by Street & Smith Publications, Inc., at 575 Madison Ave., New York 22, N. Y. Entered as second class matter at the post office at New York, N. Y. Authorized as second class mail Post Office Dept., Ottawa, Canada. Copyright, 1952, by Street & Smith Publications, Inc. 35c per copy—$3.50 per year, $7.00 per year in countries of the Pan-American Union; $4.50 per year in Canada; $10.00 per year elsewhere. This issue is Vol. XXXVIII, No. 3. Please advise us if you move; allow four weeks for change of address. Give old and new address when notifying us. Subscription correspondence should be addressed to Subscription Dept., Street & Smith Publications, Inc., 304 E. 45th St., New York 17, N. Y. All characters used in fiction and semi-fiction stories in this magazine are fictitious. We cannot accept responsibility for unsolicited manuscripts or art work. All submissions must include return postage. Printed in U.S.A.

FOR THE READER

10 R/C Roundup—Howard G. McEntee
12 Air Notes
14 Airmen of Vision
16 Air Adventurers Club
19 Farewell to the Fixed Wing . . . ?
22 Development Highlights
24 Air Progress: Supermarine Spitfire —Douglas Rolfe
26 "Inside Story" of MiG-19—James Peck
28 Bouncing Bertie—Paul Palanek
32 Kit Tips for the Novice
34 They Model for Money
36 Mini-Paagan—Dennis Davis
38 "AT" Forum
39 Rubber Powered Champs—George DeLaMater and Bob Brawner
44 Fokker's First Fighter—W. Musciano
48 F&B Aircraft's Colorado Killer
48 Contest Craft Co.'s Maryland Mite
49 Dyna Model's F-84
49 Scientific's P-26A
50 We'd Like You to Meet
54 Dope Can—"Dopester"
56 Douglas A2D
58 The Civil Air Patrol Cadet
60 Western Roundup—Dick Everett
66 Sketchbook
69 Contest Calendar
70 Mach
71 Three Views: Dassault MD-452 Mystere and De Havilland DH 110
72 Republic F-84F Thunderjet
74 How to Wire for Spark Ignition
76 Showcase
78 For Your Information

FROM THE READER

All communications to the editorial offices should be addressed to Air Trails, 304 E. 45th St., New York 17, N.Y.

Model Annual Plans . . . Congratulations on the production of another terrific Model Annual! This issue really fills the bill on the latest in model aircraft. As a regular subscriber, I recognized some of the models presented in this year's annual. I am very pleased with my copy, and many of my friends have purchased Annuals of their own after glancing at the copy I have.

I noticed that you are offering full-size plans for the airplanes appearing in the Annual. I would like very much to obtain these plans, and I would appreciate a list of those available and the prices of same.

Paul D. Petterson, Minneapolis, Minn.

• Plan ATA #251 contains: Fokker Triplane, 20 inch wingspan, control line for .09 engines; B-36 solid model, 14 inch wingspan; Ole Slippery team racer, 30 inch span, .29 engines; Horton IV flying wing scale tow-line glider, 35 inch wingspan; Little Senator Half-A free flight, 30 inch span; Bienenstein's Mulvihill Trophy winning outdoor rubber stick model, 54 inch span. Price 35c.

Plan ATA #522 contains: North American AT-6 control line flying scale with complete cockpit details, 40 inch span for .32 to .60 engines; Bristol Bullet rubber powered scale biplane, 18 inch span; Dunham's All-American rubber powered cabin model, 59 inch wingspan. Price 35c.

Plan ATA #523 contains: Happy Medium record-holding free flight, .29 or .31 engines, 68 inch span; Executive twin #50 Jetex powered all-balsa semi-scale, 18 inch wingspan; Double Whammy scale-like stagger wing U/C stunt for .29 to .35 engines, 36 inch span. Price 35c.

. . . In your 1952 Air Trails Annual you had an article called "Build Your Own Receiver-Transmitter." At the end of the article it told where to buy the radio parts, but no addresses. Will you kindly let me know the mailing address of American Telasco Ltd. and Control Research?

Lucien Auletta, Maybrook, N. Y.

• American Telasco, Ltd., 55 West 42nd Street, New York 36, N. Y.; Control Research, Model Division, Box 9, Hampton, Va.

Correction on Rainbow . . . In regard to your answer in the April letters' column about whatever happened to the Republic Rainbow: Two Rainbows were built. One crashed at Eglin. The other is being used by Col. Goddard's Photo Test Section at Wright Field to test new Camera Installations. This is the military version and is designated XR-12. Its top speed exceeds 450 miles per hour. It first flew February 4, 1946.

Ken Ellington, Assistant to the President, Republic Aviation Corp.

Likes American Cuties Best . . . Please send me plan #152 that includes K.C. Cutie. I am in the U.S. Army stationed here in France and although away from home, modeling still absorbs large portion of my time. One attraction of Cutie is that it was designed by a fellow close to St. Louis, and I'm a St. Louisan.

Pfc. Ralph E. Boefer, U.S. Army

That DC-3 Hum . . . The picture of a Douglas DC-3 Transport in your "Air Progress" section brought back to my mind a question that I have often wondered about. After talking to several mechanics on the subject, I understand that the DC-3 is powered by either Pratt & Whitney or Wright Cyclone Engines. All of us have seen this airplane fly, and have heard that characteristic "hum" of the engines that denotes a DC-3 and no other plane. It seems logical to me that only one make of engine is capable of producing that familiar sound, and I cannot understand how two different makes of engines sound identical to each other, can you?

Mike Baca, Armijo, New Mexico

• Most DC-3s in operation by airlines are powered by two Pratt & Whitney R-1830-92 engines; comparatively few are powered by Wright Cyclones. It is very probable that those which fly over your territory are powered by Pratt & Whitney engines.

Open Cockpits and Olden Times . . . Like the never to be forgotten thrill of that first solo flight, it is only once in a lifetime that such a classic is struck off as "The Open Cockpit Era." (Air Trails, April.)

Walter Fitch, Kansas Governor, Soaring Society of America

. . . Let's have more articles like "The Open Cockpit Era." Needless to say, I've read every word of it. Those old-time stories really hit the spot, and bring back wonderful memories.

I still own an old OX Waco (one of the first ones built). It hasn't flown in 10 years but it's in good shape, and stored away. Also have a little C-3 Aeronca.

I would like to purchase photos of some of those old-timers built between 1919 and 1935. Do you or your readers have any information as to where I might get some?

Stanley Dudek, Millstone Rd., Somerville, N. J.

. . . I thought your item on "The Open Cockpit Era" was best reading material on early airplanes.

Tuck Taylor, Belle Plaine, Minn.

. . . Congratulations on an extremely interesting magazine for April. Those old-time stories are wonderful. Also, being an avid old-time fan I can only encourage more old time scale.

Pfc. T. E. Wilson, Amarillo A.F.B. Amarillo, Tex.

(Continued on page 8)

NOTICE TO SUBSCRIBERS

Please advise us if you move, giving old address and new address; allow four weeks for change of address; address all subscription mail to Air Trails Subscription Department, 304 East 45th Street, New York 17, N. Y.

COMET Launches the PACEMAKER

Kit No. T4-Pacemaker

It's Growing

BIGGER *and*

BIGGER *and*

BIGGER!

COMET DOPE

Your Best Buy
Your Biggest Value!

10¢

Why do so many model builders find Comet the best buy in the dope field? Because Comet Dope gives them the highest quality—in a big jar for only 10c! Comet Dope has been winning new friends by the millions—and *holding them!* The truest, up-to-the-minute colors—Insignia Blue and Red, Regal Maroon, Aeronca Orange, Taylorcraft Yellow—and a full range of other vivid colors! Amazing covering capacity—flows on smoothly, dries quickly, makes models look better! Remarkable resistance to separation and hardening—stays good in the jar!

Try COMET CEMENT—another big 10c value!

Great New "*Free Flight*" GAS MODEL

For beginner or "old-timer", there are thrills galore in Comet's great new PRE-FAB "PACEMAKER" Gas Model! Finished and die-cut parts make it a cinch to build—and how it flies! Fuel-proof plastic cowling, windshield and windows; all parts die-cut to size; decal model emblem and numerals; all necessary finished metal parts; dethermalizer equipped; easy-to-follow detailed plans; designed for average ½A engines! Get it—build it—fly it—it's terrific!

$2.50

COMET MODEL HOBBYCRAFT, INC.

501 WEST 35th STREET CHICAGO 16, ILLINOIS

AMERICA'S HOBBY CENTER, Inc.

SAN FRANCISCO · DENVER · CHICAGO · NEW YORK · BROOKLYN · NEW ORLEANS

ESTABLISHED 1931

21st YEAR

The only model store that gives you . . .

1952 LARGEST MODEL & SUPPLY FIRM IN AMERICA

1. One year subscriptions to model Airplane News, Air Trails and Flying Models or its equivalent value to our regular customers.
2. 14-Day Money Back guarantee on unused purchases.
3. Unused purchases exchangeable within 14 days.
4. No postage or packing charges—we insure safe delivery ANYWHERE IN THE WORLD.
5. 24 hour service. Mail addresses in Chicago, San Francisco, Denver and New Orleans which will airmail your orders to our N. Y. office for prompt shipment.
6. Most complete model stock in America—gas, rubber, solids, etc. if it's advertised, we can usually supply it.
7. Competent understanding of your modeling problems.
8. No "minimum" orders. Any order is welcome.
9. FREE with engines. 50 ITEMS WORTH OVER $7.00 AT NO EXTRA COST. SEE BOX ON LEFT.
10. FREE rubber wheels, knife, etc., etc., with gas planes. 12 ITEMS WORTH $3.50 AT NO EXTRA COST. SEE BOX ON LEFT.
11. FREE membership in "Modelcrafters of America," the club that keeps you up to date on gas modeling and SAVES YOU MONEY ON YOUR PURCHASES. OVER 90,000 members.
12. FREE illustrated giant 2-color 128 page catalog with every order.

FREE! FREE!

50 items with gas engines, incl.:

(with diesel or glo engines, all needed items are given). Items include • Quality Coil • Everlast Condenser • 3-way Plug Wrench • Hi-Tension Wire • Stranded Ignition Wire • Insulated Coil Holder • Correct Size Prop • Presto Engine Starter • Complete Instructions • Battery Box • Slide Switch • 24 pg. Engine Manual • 4 Mounting Bolts • 4 Mounting Nuts • 4 Wiring Lugs • Spark or Glo Plug • Identification Tags • Motor Cover • Speed Indicator • Log Book • Trouble Shooting Chart • No. 70 Oil • Membership in Modelcrafters of America • A H C Guaranty • 128 pg. Giant 2-Color Catalog • Plus Free Postage, Packing and insurance if ordered by mail.

12 items with gas planes incl.:

• Correct Rubber Wheels • Pro All-Metal Knife • Giant Construction Manual • Speed Indicator • Log Book • Complete Full Size Plans • Insignia • Membership in Modelcrafters of America • 128 pg. Giant 2-color Catalog • Plus Free Postage, Packing and insurance if ordered by mail.
(Premiums on Planes selling at over $1.50 only)

N. Y. CITY MODELERS

TWO STORES TO SERVE YOU!
Largest stock in the country at either of our two stores . . .
156 W. 22nd St., New York City
1065 Broadway, Brooklyn, N. Y.

Experts on hand to help you with your problems. Complete stock including engine parts and service at both stores.

Copyright 1951 America Hobby Center Inc.

ENGINES

GLO ENGINES

Atwood Wasp (FF)	(AA)	6.75
Atwood Wasp (U-C)	(AA)	6.50
Baby Spitfire	(AA)	5.45
Baby Spitfire Pkge.	(AA)	5.95
Cox .09, .15, or .19	(A)	8.95
Forster G. 29 Glo	(B)	14.25
Forster G. 31 Glo	(C)	14.25
Fox 29	(B)	14.95
Fox 35	(C)	14.95
Fox 59 Stunt	(D)	29.95
Hornet 199	(A)	19.95
Hornet 199 Airc.	(A)	23.90
Infant Torpedo	(AA)	5.50
K & B Glo Torp 29	(B)	15.95
K & B Glo Torp 32	(C)	15.95
K & B Torpedo .049	(AA)	6.75
K & B Torp. Jr.	(AA)	5.50
K & B Torpedo 19	(A)	13.95
Mohawk Chief Glo	(B)	9.95
Ohlsson 23 Rv Deluxe	(B)	11.95
Ohlsson 29 Glo	(B)	13.95
Ohlsson 33 Glo	(C)	13.95
Ohlsson 29 Marine	(B)	14.95
Ohlsson 60 Glo	(D)	13.95
O.K. Bantam Glo	(A)	9.95
O.K. Cub .099	(A)	6.95
O.K. Cub .099 Pkge.	(A)	7.75
O.K. Cub .049	(AA)	4.95
O.K. Cub .049	(AA)	5.25
O.K. Cub .049 Pkge.	(AA)	5.75
O.K. Cub .074	(AA)	5.95
O.K. Cub .074 Pkge.	(AA)	6.75
O.K. Cub .049 Kit	(AA)	4.95
O.K. Hothead Glo	(B)	10.95
O.K. Super 60 Glo	(D)	11.95
Royal Baby Spitfire Pkge.	(AA)	5.95
Royal Spitfire	(AA)	7.95
Spitzy	(AA)	4.45
Spitzy Senior Pkge.	(AA)	5.45

IGNITION ENGINES

Cobra	(C)	12.50
Dennymite	(C)	6.95
Forster 99	(E)	19.75
Hornet 60	(D)	16.95
Jodco Kit	(B)	6.95
K & B Torpedo 29	(B)	18.50
K & B Torpedo 24	(B)	16.50
Merlin	(B)	11.95
Mohawk Chief	(B)	10.95
Ohlsson 23 RV Deluxe	(B)	12.95
Ohlsson 29 Rotary	(B)	14.95
Ohlsson 33	(C)	14.95
Ohlsson 60 Luxe	(D)	13.50
O.K. Hothead (Sup 29)	(B)	12.95
O.K. Super 60	(D)	13.95
O.K. Twin	(E)	58.00
Phantam P-30	(B)	13.95
Ram	(B)	6.75
Rogers 29	(B)	9.95
Spitfire	(D)	24.95
Super Cyclone Dual	(D)	13.95
Super Cyclone	(D)	12.95
Thor	(B)	9.95
Thor Kit	(B)	6.95
Wasp Twin	(D)	29.50
Wenzel	(B)	15.00

AIR ENGINES

O.K. C0 2		5.95

JET ENGINES

Dyna-Jet Redhead	35.00
Jetex 50	1.95
Jetex 100	4.50
Jetex 200	5.95
Jetex 350	8.95

ELECTRIC MOTORS

Dynamite	1.98
Imp Outboard	3.50

ENGINE PARTS!!

EVERY part for EVERY ENGINE listed on these pages is IN STOCK at America's Hobby Center. Send today for the parts you need to keep your engine in flying condition.

HO RAILS

Did you know A.H.C. now carries a complete line of HO? Write in for your needs!

FREE-FLIGHT PLANES

Baby Phoenix 36" AA	1.75
Bootstrap 40" AA	2.50
Buccaneer B Special 34" B	3.95
Champion 36" A-AA	2.50
Civy Boy 24" AA	1.50
Civy Boy 31" AA	1.95
Commanche 36" AA	2.75
Dakota 24" AA	2.75
Folly 32" AA	1.75
Fo-bar 36" AA	1.75
Fo-Bar 65 65" B-C	6.95
Hawk 27" AA	1.50
Jeticopter (Jetex 100)	3.75
Junior Phoenix 36" A	2.25
Lil Rascal 27" AA	1.50
Lift Master 24" AA	2.25
Little Twister 30" AA	1.50
Lil Rascal 27" AA	1.50
Luscombe Sedan 72" C-D	12.50
Luscombe Silvaire 43" A-B	2.00
Mini-Hogan 34 34" AA	1.95
Mini-Hogan 45 45" AA	2.95
Navajo 36" AA	2.50
Nomad 18" AA	1.75
PAA Master 35" AA	2.50
Powerhouse 33" AA	1.75
Powerhouse 41" A	2.95
Powerhouse 56" B	4.95
Phoenix Flash 32" AA	1.75
Phoenix Skipper 34" AA	2.25
Profile Powerhouse 24" AA	1.00
Sandy Hogan 70" B-C	5.95
Scot Free 24" AA	2.95
Shadow 32" AA	1.95
Sioux 36" AA	2.75
Skylark 31" AA	2.00
Sniffer 29" AA	1.75
Spitfire Ace 36" AA	2.95
Spitfire 28" AA	1.95
Super Brigadier 58" B	4.95
Super Flash 53" A-B	4.50
Taylor Cub 35" AA	2.95
Trixter Cub 29" AA	2.00
Trixter Pixie 26" AA	1.25
Yank 23" AA	1.50
Zeek 33" AA	2.50
Zeebin 33" AA	2.25
Zeke 80" A-B	4.95
Zipper 32" A	2.50

U-CONTROL PLANES

A12 Twin 25½" AA	2.95
Aerobat (Whip)	3.95
Aeronca Sedan 22" AA	1.95
A. J. Fireball 36" B-C-D	6.95
Aerosnite 17" AA	5.95
All Amer. Trainer 21" AA	1.75
All Amer. Stunt Trainer Jr. 26" A-AA	2.50
All Amer. Stunt 36" A-B	4.95
All Amer. Sr. Stunt 51" B-C	5.95
Baby Ace 18" AA	3.50
Baby Barnstormer 23" AA	2.95
Baby Cinch 30" B-C	2.50
Baby Clown 22" AA	1.50
Baby Di-Doe 21" AA	1.75
Baby Era 18" AA-A	2.50
Baby Era Bipe 16" AA	2.50
Baby Sky Box 36" A-B	2.95
Baby V Shark 20" A-B	2.95
Barnstormer 47" A-B	5.95
Bat 32" C-D	2.00
Bearcat 35" C-D	4.95
Bee 24" B	1.50
Beechcraft Half A 16" AA-A	2.95
Ben Howards Pete 30" B-C-D	5.95
Bipe Stunt Trainer 22" B-C-D	3.95
Boeing P26A 18" AA	2.95
Boeing P26A 28" A-B	6.95
Brave 36" A-B-C	4.75
Cessna 22" AA	1.95
Cessna 36" B-C	5.95
Chief 51½" A-B-C-D	7.50
Corsair 17" A-AA	2.95
Curtis P40P 20" AA	3.95
Di Doe 28" A-B-C	3.95
Dmeco Spl. 24" C-D	7.95
Douglas Sky Skyraider (Plastic) 12½" AA	5.00
Duster 15" AA	3.95
Duster 15" AA (Incl. Engine)	7.95
Dynamite 26" A-B	3.50
F4S Supersonic 20" AA	2.95
F4S Supersonic (Incl. Engine)	7.50
F6S Supersonic 28" AA	5.95
F6S Supersonic (Incl. Engine)	9.95
Fire Baby 19" AA	2.50
Firebaby (incl. Engine)	7.50
Flip-Flop 24" A-B	3.50
Flivver 24" B-C (all sham.)	3.95
Flying Clown 28" A-B-C	1.95
Freshman 9 24" A	2.48
Freshman 19 30" A	2.98
Freshman 29 36" B	3.98
Great Lakes Trainer 27" A-B	5.95
Guided Star 24" A-B-C	5.98
Guided Starlet 24" AA	2.75
Hell—Razor 14" A	5.95
Hell—Razor 15" B	6.50
Hell—Razor 18" D	6.95
Hell—Razor 9" AA	2.00
Howard Ike 20" AA	3.00
Infant Wagon 20" AA	1.95
Junior Stunt 9 27" AA-A	3.48
Junior Stunt 19 24" A	3.98
Junior Stunt 29 40" B	4.98
Key 29" B-C	5.95
Key—Det 18" AA-A	2.50
Kingpin 28" A-B	3.50
Knockout 18" AA	2.50
Lil Duper Zilch 42" A-B	3.95
Little Ace 18" AA-A	1.95
Little Bipe 16" AA-A	1.50
Little Devil 18" AA-A	1.50
Little Mustang 18" AA	1.95
Little Sabre 18" AA	1.95
Little Schmoe 17" AA	1.50
Locomotive Sedan 22" AA	1.25
Maverick 24" AA-A-B	1.00
Minnow 28" A-B-C	5.95
Mini-Zilch 19" AA	1.25
Monocoupe 36" B-C	4.95
Mr. Mulligan 32" B-C (Sterling)	4.98
Mustang 37" A-B (Berkeley)	5.95
Mustang P51 19" AA (Airlane)	1.25
Mustang P51 36" B-C (P.D.Q.)	2.95
Mustang (Sterling) A-B-C 38"	2.95
New Era 28" A-B-C	4.95
N.A. P51 16" AA (Cons)	2.95
No. Amer. T6 (SNJ) 31" A-B-C	4.95
Papoose 32" A	3.95
Pee Wee Pup 17½" AA	.95
Pee Wee Pursuit 16" AA	1.25
Peter Pan 16" AA	1.50
Phantom Era 22" A-B	3.50
Piper Cub 22" AA	1.95
Piper Cub Comet 35" A-B	2.95
Piper Cub Trainer 25" AA	1.95
Piper Vagabond 36" A-B-C	3.95
Pitts Special 25" A-B	4.95
Polish Fighter 36" B-C-D	5.95
Presto Liner 20" A-B-C	3.95
Primer 18" AA	1.40
PT Trainer 26" A-B	1.99
Puddle Jumper 19" AA	1.00
Quest 30" B	4.95
Ringmaster 42" B-C	2.95
Rookie Jr. 18" AA	1.50
Rookie Trainer 36" B-C-D	2.95
Ryan S. T 36" B-C	5.95
Scout 24" AA	2.50
SE-17" AA	2.50
SE 8 32" B-C-D	5.95
Senior 9 27"	3.48
Senior 19 34"	3.98
Senior 29 28"	4.98
Senor Puddlejumper 25" A-B	1.95
Sharpy 47" C-D	4.95
Sky Box Trainer 38" B-C-D	5.95
Skyleader 18" A-AA	2.50
Sophomore 9 26" A	2.48
Sophomore 19 32" A	2.98
Sophomore 29 35" B	3.98
Speedster 12" AA	2.50
Speedwagon 20 12" A	3.95
Speedwagon 30 18" B	4.95
Speedwagon 50 15" C-D	5.95
Spitfire 20" AA	3.95
Sportwing 36" A-B-C	3.95
Squaw 39" A-B-C	5.75
Stinson 22" AA	1.95
Streamliner 25" B-C-D	4.00
Stunt Runt 16" AA	1.25
Stuntmaster 40" B-C	5.95
Stuntwagon 30 44" B-C	5.95
Stuntwagon 58" D	7.95
Super Clown 38" B-C	2.95
Super Duper Zilch 52" C-D	5.95
Super Knock-Out 24" A-B	3.50
Super Squirt 21" (Jet)	5.95
Super Stunt Runt 29" A	2.25
Sweet Chariot 18" AA-A	2.50
T-28 N.A. Trainer 39" B-C	5.95
Taylorcraft 35" A.B.C.	2.95
Thunderbolt 40" C-D	4.95
Trail Blazer 24" B-C-D	2.95
Trixter Babe 20" AA	1.25
Trixter Invert Jr. 40" A-B	3.95
Trixter Prof. Trainer 32" A-B	3.50
Trixter Profile 32" A-B	2.50
Trixter Profile 58" B-C	3.50
Trixter Twin Profile 47" B-C	5.00
Tuffy 24" AA-A	1.98
Vampire 40" B-C	4.50
Viking 51" C-D	5.75
Vixen 21" AA	1.95
Waco 33" B-C	5.95
Warhawk 22½" B-C	5.95
Warrior 36" A-B-C	4.95
Wee Duper Zilch 34" AA	2.95
Wee Willie 18" AA-A	1.95
Whirlaway 11" AB	3.95
Wildfire 23" B-C-D	1.95
Wing Ding 18" AA-A-B	2.28
Wing Dingus 16" AA	2.25
Yak 38" B-C	2.95
Yank 23" AA	1.50

BURIED IN THIS AD
are most of the new items. Sometimes there isn't time or space to include them. But, if available, we have it.

ACCESSORIES

FUELS Express Collect ONLY (Cont'l U.S.A.) Total Minimum Order $3.00 (con be port fuel). No C.O.D.'s.

For Ignition	Pts	Qts
Ohlsson #1, #3	.85	1.60
Power Mist #6	.65	—
For Glo		
Ohlsson #2, #4	.85	1.60
Ohlsson AA	.85	—
Powermist Glo	.95	—
Powermist Spitfire	1.60	—
Powermist Infant TD	1.00	—
Ranger Glo	.90	—
Testors 39	.75	—
Dynaglo	.85	—
Ranger AA	.90	—
Blue Blazer #1	.70	—
Blue Blazer #2	.80	—
Speedwagon 50 15" C-D	5.95	—
Spitzy	.85	—

PROPELLERS

Rite Pitch or Super Stunt	
8", 9", 10" in 4, 6, 8 pitch	.25
11", 12" in 6, 8 pitch	.35
13", 14" in 6, 8 pitch	.50
Supersonic 100	.50
Supersonic 1000	1.00
Red Devil	.65
Supersonic Ultra Glo	.90
Pouring Spout For pint cans	.10
Hot Fuel Proofer .25, .35, .45 &	.50

Scamper Plastic 5½" 3p., 6" 4p. .25; 5" 6p., 45 10" 10p., 11" 8 p. .65
Super Syd. 8", 9", 10" in 4, 6 or 8 p. .15
Veco 6" 3p, 4p, 5", 5p, 8" 5p, 6p, 9" 6p, 7p. (6"—25¢; 7" & 8"—30¢; 9"—35¢)
Kayson 5/3, 5½/4, 6/3, 6/4, 6-5—15¢; 7/4—20¢
Also Ohlsson, Flo-Torque, Power, Top Flite, Tornado, Testorv, etc.

RUNNING & TEST BLOCKS

E-Z Running Stand	1.50

METAL GAS TANKS

Dale Stunt Tanks—All Sizes	.65
#1—1½x1¼x2½	#4—5¾x1¼x3"
#2—2¼x1¼x3"	#6—11¼x1¼x3"
#3—2¼x1¾x4"	#12—4½x1¾x3"
	#15—2¼x1½x5½
From: 1½x1¼ or 2 hor. or ver.	.50
1½x1¾x2 Sq.	.60
1½x ⅝x2½ Wedge	.60
1½x1x2½ " Rnd Stunt	.80

Also Macco, Berkeley, Acme, Pylon, Berkeley, etc.

IGNITION COILS

O.K.	1.50	Rogers	2.00
O.K. Twin	4.00	Wilco	1.95

CONDENSERS

Regular — .20	Smith Metal .35

SPARK & GLO PLUGS

Arden Glo (V2 or V3)	.75
Champion Glo V, V2, V3	.75
Champion V, V2, V3, VR1, VR2	.50
McCoy Hot Point	.65
Ohlsson Glo (V, V2 or AA)	.65
O.K. Glo-plug (V2 or V3)	.50
Plug washers	.05

IGNITION ACCESSORIES

6 ft. Hook-up wire	.25
Austin Booster Plug-in	.30
Midget Switch: slide—.25 Turn	.50
Ohlsson Snap-Pack	.35

PROP SPINNERS

1½"-.85; 1½"-.90; 2"-.95; 2½"-1.10	
3" Needle Nose 1½" dia.	1.15
" " 2"	1.20
Plastic 1½"	.50
Scamper Plastic 1½", 1½", 2", 2½"	.45

WHEELS

Semi Pneumatic (pr)	2"		1.10
2½"	1.25	3"	1.75
Sponge Rubber (pr)	1½"-1"	.30¢	.40
1½"-.35¢	1¾"-.40¢		.75
1½"-.60¢	2¼"		.75
Tail Wheels (ea.)			.15
Trexler Ply (pr)	1½"		.40
1¾", 2"-.50¢; 2½", 2½"-.60¢			1.00
2½"			1.25
3"			1.50
3½"			

AA ACCESSORIES

Shot-off Valve (state engine)	.50¢ & .65
E-Z Minimount	.85
.004 or .006 x 2—35"	.35
.006 x 2—52"	.50
Spinners (state engine)	.60
Presto Starter (state engine)	.25
Props (state engine)	.15 .25
Tanks (state engine)	.50, .60, .75
Neoprene (ft)	.15
Fuel Meter	.50
AA Univ. Coupling	.60

MISCELLANEOUS

Batt. Box Pen., Medium, Regular	.40
Brass Tubing 1/16", 3/32", 1/8"	.20
Copper Tubing ¼" OD, per ft.	.20
Finger Guard	.40
Fuel Pump (pt. or ½ pt.)	.65
Presto Disc Starter	.25
Metal Motor Mounts, Sm—30¢; Lg.	.50
Needle Valve Exten. flexible	.25
Neoprene Tubing, per foot	.30
Transparent (reg. or AA) ft.	.15
Spitfire Timer Valve	2.95
No. 70 oil. 3 oz.—25¢; pint	.50
Plastic Fuselage 19" set of 2	.85
Plug Wrench, 3-way—15¢; 4-way	.20
Plywood (6"x12") 1/32" 1/16"—25¢; 1/8"—30¢; 1/4"	.35
Silk per yard	1.50
Socket Plug Wrench, 4-way	.50
Spinnet Starter	5.00
Flexible Needle Valves: Cub, Royal Spitfire, Skyleader—79¢; Wasp, Baby Spit, Infant, Torp Jr., Torpo 45—50¢; Universal Needle Valve (A-B-C engines) 50¢; Flexible 75¢	
Vibratac	2.00

SPECIAL SOUVENIR BARGAIN

The manufacturer of a well-known engine, after selling 30,000 at $9.95, has decided to go out of production. We have his remainder of 1,000 complete sets of finished and unfinished castings and parts: Cylinder, piston, piston pin, connecting rod, needle valve, gas line, timer, crankshaft, crankcase, cam, etc., including screws, gaskets, nuts, etc.

You get a complete set, except spark plug and tank. An interesting souvenir of a model engine in the raw for your den or desk.

No. J9 . . . $1.00 per Complete Set

SPECIAL BARGAIN IN PROPELLERS

SPECIAL BARGAIN IN PROPELLERS
15 ASSORTED FOR $1.00

We have purchased 50,000 assorted gas model propellers from the country's largest prop manufacturer.

They are ALL PERFECT and range from Champion semi-finished (listing at $ for $1.00) to finished and lacquered props that sell up to 45¢ each regularly. Various pitches, in sizes from 7" to 14".

No selections, please, but we will send you a fine assortment of 15 for $1.00, if ordered by an order for anything advertised in this magazine. MONEY BACK GUARANTY.

Propeller Sale—8 For $1.00

We don't believe in hoarding, but you won't get a bargain like this anywhere else.

By making a tremendous purchase, AHC has acquired from Rite-Pitch a fine line of finely finished and lacquered high grade, square-tip propellers at a very low price and is passing the savings on to you.

8"-6p.; 8"-8p.; 9"-6p., 7"-8p.; 10"-6p.; 10"-8p.; 11"-6p.; 11"-8p.; 12"-6p.; 12"-8p. ALSO 5"-3p.; 8½"-4p.; 6"-3p.; 7"-3½p.

DE LUXE HOBBY CATALOGS

25¢ — 128 page 2-color 9" x 6" catalog, *fully illustrated*. Over 10,000 items, including gas, glo, diesel, jet and CO2 engines, engine and rubber powered planes, boats, cars, solids of all kinds, tools, engine parts, etc., etc. PLUS many articles on building and flying, trouble shooting, etc., etc. PLUS pages and pages of accessories, engine parts, decals, wood, dope AND EVERYTHING.

10¢ — 64 page 2 color 9" x 6" illustrated catalog. Free flight and U-Control planes, engines (gas, glo, jet, diesel, Co-2), accessories and supplies, rubber powered planes, solids, boats, cars. Over 5000 items. PLUS articles on building, doping, flying, engines, etc., etc.

FREE — Fine jumbo catalog of thousands of hobby items: Plans, boat, car, engines, accessories, solids, gas, rubber, etc., etc.

SALE SPECIAL

WINSTON GAS ENGINE LIBRARY

FIVE BIG BOOKS FOR ONLY . . . 1.49

REGULAR PRICE $3.00 EACH
A $15.00 VALUE FOR ONLY $1.49

Here is a BARGAIN no modeler (beginner or expert) should pass up. FIVE separate volumes covering every phase of gas and glo engine operation, *plus* building and flying powered free-flight and control line airplanes, *plus* lots of other information on boats, cars, forming model clubs, etc., etc. All written by Bernard B. Winston, whose books and articles have been read by over 1,000,000 modelers. *Well over 200,000 copies of these books were sold at $1.00 each.*

1. **MODEL GAS ENGINE HANDBOOK** — 150 pages, 80 illustrations. A complete manual of the theory and practice of Model Gas Engine operation. Includes specifications of principal engines, blueprints, directory, dictionary, etc.
2. **GLO ENGINE HANDBOOK** — 64 pages, 80 illustrations. A complete manual on Glo Engines—their theory, operation and care. Includes everything from buying your engine to breaking-in, flying and trouble shooting, plus dictionary, directory, prop size chart, etc.
3. **GAS MODELERS GUIDE** — 170 pages, 92 pictures and diagrams. Here is a book that really tells you about modeling. Contents tell all about free-flight and control-line planes, race cars and boats, radio control, winning contests, forming clubs, AMA rules, club directory, complete dictionary, etc., etc.
4. **CONTROL-LINERS** — How to build and fly them. Includes everything: how the sport started, types, designs, construction, power plant, propellers, contests, doping and painting, etc., etc. Covers the subject from A to Z.
5. **GAS MODEL PLANE CONSTRUCTION** — Over 132 pages and 200 pictures and diagrams. Give you the answers to every problem from tools needed to repairing the model. Covers free-flight and U-Control. Chapters include points and structures, fuselages, wings, engine and accessory mounting, sanding and finishing, assembling, covering, doping and finishing, repairs, etc., etc.

ALL 5 VOLUMES - 500 PAGES Only $1.49

DOPES (Cont'l U.S.A. Only)

Aeroglaze Hot Fuel Proof (20c and 60c sizes) Fillercoat, Cement, Plastic Balsa, Cessna Green, Cessna Gray, Orange, Yellow, Corsair Blue, Curtiss Blue, Fokker Red, Black, Lambert Gray, Aluminum, Stearman Red, Stinson Green, White, Cream, Maroon, Olive Drab.	
COMET (10c) Cream, Gray, Red, Gloss Top Coat, Horizon Blue, Black, Insignia Blue, Orange, Maroon, Gold, Sanding Sealer, Silver, White, Yellow.	
Speed-o-laq (10c and 35c sizes) Aeronca Orange, Army Yellow, Aeronca Yellow, Banana Liquid, Black, Gray, Chocolate Brown, Cub Blue, Cub Cream, Cub Green, Cub Yellow, Gloss Top Coat, Insignia Blue, Insignia Red, Metallic Blue, Olive Drab, Sanding Sealer, Silver, Stinson Green, Taylorcraft Cream, Taylorcraft Yellow, Tennessee Red, Maroon, Waco Blue, White, Undercoater, Dark Gray.	
CLEAR DOPE Aeroglaze 20c and 55c; Comet 10c and 25c; Speed-o-laq 10c and 35c.	
THINNER Aeroglaze 20c and 45c; Comet 10c and 25c; Speed-o-laq 10c and 25c.	

U-CONTROL ACCESSORIES

Adjustable Push Rod set	.25
Bellcrank 2" or 3"—10¢, 4"	.15
BERKELEY control lines .008, .010, .012: 2-55	.50
.008, .010, .012, .014 2-70	.65
.008, .012, .016: 2-150'	1.00
Stranded .015, .021 55' 1.00; 70' 1.25; 200'	3.50
Berkeley Metal Flight Reel	1.25
Berkeley Metal Handle	1.00
Controliner Flight Reel (with wire) AA—1.85; A-B	2.25
Elevator control horn; Veco	.30
Elevator hinges 4 for	.10
E-Z Plastic Control Handle	.85
Flex Lead-in Wire AA or AB 3 ft.	.15
Instant-Use Handle, 5 or 6	.50
Luxon Clips A, B, C or D Pr	.10
PYLON control lines .008, .010, .012, .014, .016 dia. 2-52 lines	.60
.008, .010, .012, .014, .016, dia. 2-70 lines	.75
Flexible 2-52' 1.50; 2-70'	1.95
Pylon Control line Reel	1.25
Pylon Plastic Handle 6"	.85
Reel Pal Reel	1.90
Simplex Handle & Reel	1.50
Stunt Bellcrank & Elev. Horn	.25
Swivels, small 15c pr.; large	.25
Tommy Handreel	1.75
U-Reely Contr.—7.50; cable	8.50
U-Reely Remote	12.50
Veco Bellcrank	.30 & .25
Wood Control handle	.25

MODEL BOATS

Chris-Craft 26" C-D	6.75
Chris-Craft Express 28" BCD	5.75
Chris-Craft Runabout 25" BCD	6.25
Harco 25" B-C-D	6.25
Owens Yacht 26" B-C-D	6.25
Vineyard 25" BCD	6.25
Dumas Electric Drive Unit for 6 above ships	4.00
Buckeye prefab. 17" A-B-C	4.95
Chris-Craft Cruiser 17" ABC	5.95
C.C. Riviera 12" AA	2.95
C.C. Riviera 12½" AA-A	3.50
C.C. Special 12½" AA-A	3.50
Higgins Speedster 16½" AA-A	4.95
Richardson Sedan 17" AA-A	5.95
Royal Skimmer (Incl. Engine)	10.95
Spiteraft Plastic (Incl. Engine)	14.95
Sterling C.C. Bipe 19" AA-A	7.95
C.C. Exp. Cruiser 14" AA-A	3.50
Rescuer 12" AA	3.25
Sea Maid 12" AA	2.95

THIMBLEDROME

Cox .15 or .099 Engine only	8.95
Cox .199 Engine only	8.95
Tether car ready to run with engine	13.95

RACE CARS

Half-pint (AA)	2.95
Ohlsson Complete with Engine	19.95
Tornado Complete with Engine	10.95

WE SELL DEALERS TOO!

Did you know that Mod-Ad Agency, Inc., the wholesale affiliate of America's Hobby Center, Inc., is one of the fastest growing jobbers in the business?

We know your problems because we have your problems!

Write for sample catalog, ready for your imprint and our famous 5-point program . . . the reasons why more dealers are doing business with us. Includes our 60-Day return privilege, etc. Special Date if you are going into business. We ship anywhere in the world.

Write to MOD-AD AGENCY, Inc.
156 WEST 22nd STREET, NEW YORK 11, N. Y.
1067 BROADWAY, BROOKLYN 21, N. Y.

CANADIANS! You save plenty by ordering from us. Send remittance in full.

AMERICA'S HOBBY CENTER, Inc. - New York City, Brooklyn, Chicago, San Francisco, Denver, New Orleans

Complete FLYING OUTFITS

WORTH TWICE OUR COMBINATION PRICE!

WE WILL SUPPLY
A complete flying outfit with your own choice of any advertised engine or plane—and save you money. Just order from us or write for price.
IF IT'S ADVERTISED, WE HAVE IT

IT ISN'T OFTEN that you get the chance to buy, at less than half price, a U-Control Plane, Engine and All-Accessory Outfit with your own choice of a well known FACTORY ASSEMBLED ignition or glo engine. Everything carries the famous America's Hobby Center as well as the manufacturer's guarantee.

Even if you are a beginner, you won't have trouble building and flying any of these flying outfits, full-size plans of any easy to-build and fly plane, every accessory you will need, complete instructions, etc., etc. If you are an old-timer at building and flying model planes, we don't have to tell you what these bargain outfits are really worth.

Thousands of these complete units have already been sold. They have met with enthusiastic reception because they represent a value unheard of before in the modeling field. The price is so low that we cannot sell to dealers. You really save from $10 to $12 by buying the complete, packaged unit—everything is engineered by experts for a perfect flying combination.

YOUR OWN CHOICE OF ENGINE, PLANE, PLUS ALL ACCESSORIES, INCLUDING: Correct size finished propeller • 3-way plug wrench • Presto Engine starter with handle and card • Speed indicator tables • Log Book • Motor cover • Spark or glo plug with gasket • Complete engine instructions • 24 page Gas Engine Theory Manual • Engine adjustment chart • Metal fuel tank and gas line • Metal Battery box • Wilco Quality Coil • 12" Hi-tension lead wire and end clips • 18" insulated ignition wire • Ignition slide switch • Coil holder and mount • Everlast condenser • SAE #70 Oil • 4 ignition wiring lugs • Spark plug gauge set • 2 plane identification tags • 72 insignias • GIANT book on Control-liners, How to build and fly them • Cement • Sandpaper • "Pro" all-metal knife and blade • Metal bellcrank with bolt, nut and washer • Elevator horn • Elevator hinges • Lead-in wire • Push-rod wire • U-Control handle • 100 ft. U-Control stainless steel wire & reel • Membership in Modelcrafters of America • 128 pg 2-color catalog • Postage • Packing • Insurance. Ignition parts not needed with glo-engine not included.

YOU WON'T GET OTHER BARGAINS LIKE THESE!

BUZZ Ignition or glo
$8.50

JUDCO Ignition or glo | RAM Ignition or glo
YOUR CHOICE $10.00

O.K. BANTOM GLO | THOR Ignition | MOHAWK CHIEF glo
YOUR CHOICE $12.50

O.K. 29 GLO | OHLSSON 23 Deluxe GLO
YOUR CHOICE $13.50

OHLSSON 99 Ignition or glo | PHANTOM Ignition or glo
YOUR CHOICE $15.00

PLUS

TRAIL BLAZER

TRAIL BLAZER Model Plane with carved lower fuselage-half, fully formed aluminum upper half. Balsa sheet wing, no tissue used. Balsa tail surfaces, plywood engine mount. Schematic drawings with step-by-step plans. Rubber wheels, detail paint schemes. 24" wingspan.

PLUS ALL ACCESSORIES LISTED ABOVE

NEW .099 UNIT

Includes all 3 items

For ease of assembly, for trouble-less operation and for real effortless U-Control flying, these units are the answer to the modeler's dream. Even the beginner will have no trouble in assembling the outfit in one evening and be completely ready to fly the next morning.

1 *You get a fine engine*

O.K. CUB .099

2 *PLUS* Your choice of 2 completely prefabricated kits

24" FRESHMAN 9 U-CONTROL | Powerhouse 33 FREEFLIGHT

3 *Plus all accessories*

COST ONLY $9.95

AA FLYING OUTFITS

These are the new pint-size glo engines that are so tiny (1 to 1½ ounces) but develop plenty of power for free-flight or U-control flying.

Your own choice

INFANT or CUB .049 $7.25 | SPITFIRE or Spitzy Sr. $7.75 | CUB .074 or K. & B. .049 $8.25

Plus your choice of planes: All planes prefabricated, easy to build and fly

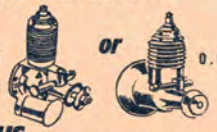
Powerhouse free-flight | Circle King 30" U-control | Puddle Jumper 19" U-control

Plus all accessories

BARGAIN OUTFIT

One of the biggest bargains we have ever offered. Over $10.00 of merchandise for only $7.50.

1 *YOUR CHOICE OF*


SPITZY .045 SENIOR or O.K. CUB .049

2 *PLUS* your choice of 4 prefabricated Scientific 22" span u-control planes.

AERONCA SEDAN | CESSNA | PIPER CUB | STINSON VOYAGER

3 *PLUS ALL ACCESSORIES*

COST ONLY $7.50

READY TO FLY

These complete outfits don't give you the fun of building. They are ready-to-operate. All the fun's in the flying. All you'll need in addition is fuel and battery. — Nothing to Build

AEROMITE $9.95 — A really beautiful red plastic rob. 17" Wing-span with Baby Spitfire engine, prop spinner, tank, etc., already installed. Shock-absorbing spring-steel landing gear. Jim Walker U-control for precision and stunt flying, plastic control handle, nylon control cord.

AJ FIREBABY $7.50 — Beautifully finished and painted, even fuel-proofed. 19" span. Includes new "slow-motion" propeller and engine.

DOUGLAS NAVY SKYRAIDER $9.95 — All plastic model including K & B Torp Jr. engine. Landing gear with aluminum rubber-tired wheels, decals, tank, spinner, etc., etc. Includes nuts and bolts for minor assembly. Fine U-Control model.

DUSTER $10.95 — True, scale bi-plane u-control model of the type used to crop-dust, stunt and train many pilots. Includes everything including dusting tube, pilot, etc., etc., plus Spitzy Senior engine. Beautifully finished in yellow and blue. 15".

F45 $9.95 — Swept wing supersonic fighter. Completely ready to fly 20" u-control model designed for the novice or the champ. Includes Spitzy Senior engine, pilot, canopy, rubber wheels, etc. Beautifully finished in silver.

F65 $11.95 — Super Sonic Fighter. Big swept wing U-control job powered by Royal Spitfire .065 engine. Another Mel Anderson beauty. Includes wing tanks, machine guns, rockets, etc. 28" wingspan.

YANK 23½"

$5.95 CHOICE OF — Equipped with O.K. .039 and all accessories. All balsa free-flight, championship models. Top notch performers.

HAWK 27"

SOLDIERS! SAILORS! MARINES!

Orders placed through us get special attention. We understand your problems and take special care of your orders. Or send for our SPECIAL SERVICES DATA

$7.95 COMPLETE RACE CAR COMBINATION OUTFIT

NEW! Scientific's "HALF-pint" race car, complete with direct drive PLUS O.K.049 engine PLUS all needed accessories. Five minutes after you open the package, you can race this car on any smooth surface, even your own backyard or cellar. Speeds over 40 miles per hour. COMPLETE except for fuel and battery. Car alone $2.95.

How To Order Send remittance in full (we prepay packing and insurance) or send $1 and we ship collect C.O.D. same day for balance. Address your order to us at your nearest branch office.

- Dept. TC-62 — 156 West 22nd St., New York 11, New York
- Dept. TC-62 — 1065 Broadway, Brooklyn 21, N. Y.
- Dept. TC-62 — 55 E. Washington Street, Chicago 2, Illinois
- Dept. TC-62 — Rm. 230, 742 Market St., San Francisco 2, California
- Dept. TC-62 — Rm. 306, 427 Carondelet St., New Orleans, La.
- Dept. TC-62 — Gas & Electric Bldg., Denver 2, Colorado

America's Hobby Center INC

OVER A GENERATION OF FAIR DEALING GUARANTEES YOUR SATISFACTION

OPPORTUNITY UNLIMITED

Top Pay AVIATION CAREER

Establish yourself NOW.... during the long range production program, for a CAREER IN AVIATION...to do vitally important work and share in the prestige of leadership.

AERONAUTICAL ENGINEERING
MASTER AVIATION MECHANICS
JET ENGINE MECHANICS

MAXIMUM TRAINING IN MINIMUM TIME

Step right into a good Aviation job without break-in, upon graduation...at TOP PAY... Essential Industry needs trained men and needs them badly... NOW!

RECOMMENDATIONS... 10,000 civilian graduates, 26,000 pilots and 8500 technicians trained for U.S. Military Forces ...Engineering graduates eligible for OFFICER CANDIDATE, AIR FORCE AND NAVAL AVIATION CADETS. *Approvals:* E.C.P.D., Nat'l Council of Technical Schools, Calif. Bd. of Education, C.A.A., Listed U. S. Office of Education, U. S. Immigration Service, Aircraft Industry, V. A. .... NOW AGAIN, training technicians for the U.S. Air Force.

What better recommendation could a school have?

CAL-AERO Graduates are in Demand

MAIL THIS COUPON *Today!*

CAL-AERO TECHNICAL INSTITUTE

GRAND CENTRAL AIR TERMINAL
GLENDALE 1, CALIFORNIA

Please send full information & free catalog, immediately

☐ AERONAUTICAL ENGINEERING
☐ MASTER AVIATION MECHANICS
☐ JET ENGINE MECHANICS

HOME STUDY COURSES
☐ Aeronautical Drafting
☐ Aircraft Blueprint Reading
☐ Stress Analysis and Design

NAME _____ AGE _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

High School Attended _____ Graduated Yes☐ No☐

AT-6 Check one: ☐Veteran ☐Non-Veteran

Letters

(*Continued from page 4*)

Super Smoke Screen . . . Here is a suggestion which may open up a new field for skywriting planes. It is a plan for cooling entire cities in the summertime by laying smoke screens over them, and thus protecting them from the sun's rays. Very hot days are generally caused by an absence of clouds in the sky. The white smoke screen closely resembles summer clouds.

Skywriting planes operate at quite high altitudes so that the smoke never pollutes the air on the streets. In laying the smoke screen, allowance, of course, has to be made for the wind. During World War II, many strategic European cities were hidden by smoke screens. The planes had no trouble keeping them covered, even on windy days.

Cool air holds less moisture than warm air. The smoke screen by reducing the temperature, also reduces the humidity.

This idea cannot be patented, so anyone is welcome to use it. The only way to find out if it works is to try it.

Alfred Schneider, Davenport, Iowa

Official Thanks . . . I want to take this opportunity to thank you for the interest and enthusiasm that you have shown towards Civil Air Patrol. We are most pleased with the CAP News Page in Air Trails, and think that you are doing a wonderful job.

Maj. Shale L. Tulin,
Director of Public Information, USAF

Parachute Test Job . . . I am in the midst of a search for a new and unique job. I have heard, through unauthoritative sources, that there may be a chance of getting a job testing parachutes if I could only get in touch with the right people.

If it would be possible, could you please supply me with a list of prospective companies to which I could write and request further information on this subject?

Neal J. Buglewicz, Overland Park, Kans.

• We suggest that you write to Irving Air Chute Company, 1670 Jefferson Ave., Buffalo, N. Y., or Swetlek Parachute Company, Trenton, N. J.

Aviation Material for Teachers . . . Here is a copy of our new Circular No. 331 entitled "Government Aeronautical Services, Publications, and Visual Aids Available to Teachers." I thought you would be interested to know that for the first time a listing has been made of the resources that are available from Government sources.

Any publicity that you can give this publication will be appreciated. We want teachers to know that it is available on request from this Office.

Willis C. Brown, Specialist for Aviation Education, Office of Education, Federal Security Agency, Washington 25, D. C.

• This is a listing of 16 sources of Services, 19 Publications sources, and 10 Visual Aids sources compiled from questionnaires sent to Government agencies only. The listing represents the combined resources of Government agencies made available to teachers in the field of Aviation Education; whether there is a charge or the offering is free; how and where it is available.

Teachers may obtain the circular free by writing to Mr. Brown at the above address.

Helicopter School . . . Have read all types of magazines on airplanes and found several schools for aircraft, but none about helicopter schools. Is there a school of this kind anywhere? I am an aircraft mechanic and I would like to get in this field.

Carl Emminger, Kansas City, Mo.

• The only helicopter school that we know of is the New England Helicopter Service, Inc., Hillsgrove, Rhode Island.

R/C . . . The R/C fans of this locality really appreciate the excellent coverage "AT" has been giving radio control. Howard McEntee's newsy column is *must* reading—the news of R/C modeling is interesting enough and the technical details and information on new commercial developments make it indispensable.

Through mention of our club in his column, we have made contact with a number of active radio controllers in surrounding small towns and the growing activity makes it certain that there will be plenty of R/C work this season in this locality.

The timing of the material in the Annual was particularly apt. With the FCC approval coming right after its appearance, the crystal-controlled transmitter and 27 mc. receiver article is becoming well thumbed and construction started on the version described in the R/C column in the April issue.

Also fine stuff is the Beep Box in that issue, construction going already on versions of that.

Hope to have a new ship in the air shortly, avoiding a repetition of last year when I arrived at Dallas with an untested and nearly completed airplane. R/C work has gotten so absorbing that I am no longer pulled off the track by other events and am concentrating on it entirely. I think that the release of the 27 mc. frequency will be the final boost that the activity needs to put it on top of the list.

Be seeing you at Los Alamitos!

Claude McCullough, Ottumwa, Ia.

New Designer . . . I have been an avid reader of Air Trails for over three years, starting October 1950. It is really a swell magazine and a lot of other guys think so, too.

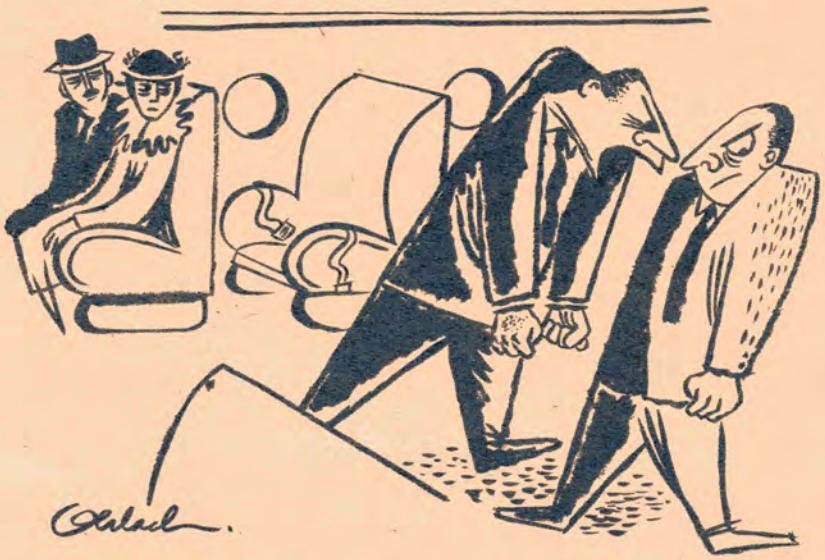
I am 14 years of age and I have just sent in a design to Airmen of Vision. I feel rather good as this is the first design I've ever sent in.

Bill Wynn, Hobbs, New Mex.

Hot Plans . . . We began to wonder what was going on when you upped the price of your magazine. We now realize it was well worth the extra ten cents. Your plans in the last three or four issues have been *hot*.

Robert Emmett, Fall River, Mass.

(*Continued on page 13*)



"Come outside and say that!"

YOU WON'T GET OTHER BARGAINS LIKE THESE!

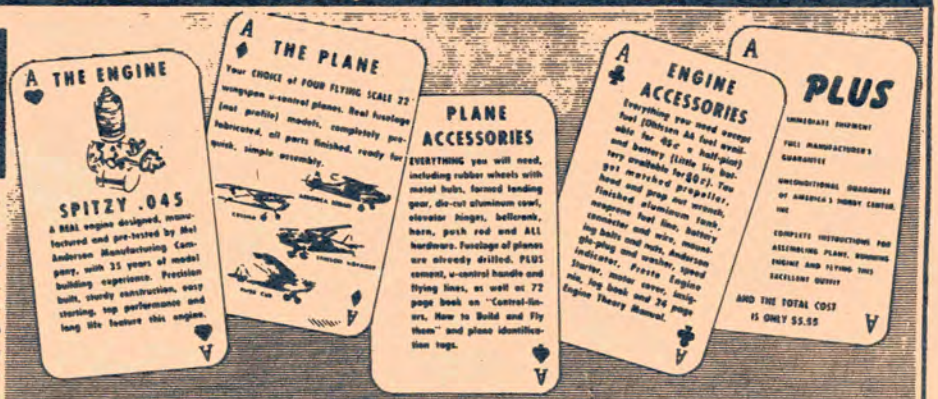
NO ONE CAN BEAT 5 ACES!

$5.55 FOR THIS COMPLETE OUTFIT

America's Hobby Center, Inc. ALWAYS has a winning hand because it has your interests at heart. When we make an offer, it's always a bargain, not only because it's top-notch merchandise, but because we go all-out to save you money AND give you special value. Here's almost $10.00 of regular advertised merchandise, fully guaranteed, and selected by our experts as a matched unit, for

only $5.55

With O.K. CUB .049 $5.95



THE WHOLE WORKS FOR ONLY $5.55

A.H.C. A DELUXE BARGAIN COMBO

ROYAL SPITFIRE .065
Most Powerful ½A engine

PLUS Your choice of **CURTISS P40F or SPITFIRE**

Monarch Models 20" wingspan 'Spittin' Image' control-line models. Extra deluxe kits. PERFECTLY and COMPLETELY PREFABRICATED. Beautiful models you will be proud to fly — and a cinch to build in only one evening.

PLUS EVERY accessory to build and fly except dope, fuel and battery. INCLUDED are matched propeller, tank and fuel line, glo plug, connecting clip and wire, wrench, motor mounts, mounting bolts and nuts, flying wire and reel, control handle, motor cover, identification tags, Presto engine starter, all hardware, bellcrank, elevator horn, hinges, sandpaper, cement, rubber wheels, decals, lead-out and pushrod wire, formed landing gear engine instructions, full-size plane plans and instructions, log book, speed indicator, PLUS Glo Engine Handbook, giant book on Control-liners, PLUS membership in Modelcrafters of American, postage, packing, insurance and 128 page 2-color hobby catalog.

BEAT THIS PRICE IF YOU CAN A $15.00 VALUE FOR ONLY $9.95

ENGINE TRADE-IN SERVICE

While America's Hobby Center, Inc. does not sell used engines, we have a constant request from schools, clubs and overseas soldiers for second-hand engines for experimental work.

If you have a used engine, we will be glad to accept it in trade for any merchandise (motors, planes, boats, accessories, etc.) except Flying Outfits and a few other exceptions, listed in our ads or catalog. Just send in your engine (with your name and address) as the following schedule indicates:

Your old Engine PLUS	$3.75 = $5.00 7.50 = 10.00 11.25 = 15.00 15.00 = 20.00 22.50 = 30.00	Credit towards your Purchase

You will receive the usual free premiums, subscriptions, etc.

EVERYTHING in this magazine can be ordered from A.H.C.

N. Y. CITY MODELERS

TWO STORES TO SERVE YOU!
Largest stock in the country at either of our two stores
156 W. 22nd St., New York City
1065 Broadway, Brooklyn, N. Y.

Experts on hand to help you with your problems. Complete stock including engine parts and service at both stores

- → 1. One year subscription to Model Airplane News, Air Trails and Flying Models or its equivalent value to our regular customers.
- → 2. 14-Day Money Back guarantee on unused purchases.
- → 3. Unused purchases exchangeable within 14 days.
- → 4. No postage or packing charges — we insure safe delivery anywhere in the world.
- → 5. 24 Hour service. Mail addresses in Chicago, Denver, New Orleans and San Francisco, which will airmail your orders to our N. Y. office for prompt shipment.
- → 6. Most complete model stock in America—gas, rubber, solid, etc., etc. If it's advertised, we can usually supply it.
- → 7. Competent understanding of your modeling problems.
- → 8. No "minimum" orders. Any order is welcome.
- → 9. FREE with gas motors, 50 ITEMS WORTH OVER $7.00 AT NO EXTRA COST.
- → 10. FREE rubber wheels, knife, etc., etc., with every gas plane selling for over $1.50. 12 ITEMS WORTH $3.50 AT NO EXTRA COST.
- → 11. FREE membership in "Modelcrafters of America," the club that keeps you up to date on gas modeling and SAVES YOU MONEY ON YOUR PURCHASES.
- → 12. FREE illustrated giant 2-color 128 page catalog with every order.

AHC does!!

HOW TO ORDER

Send remittance in full (we prepay packing and insure) or send $1 and we ship collect C.O.D. same day for balance. Address your order to us at your nearest branch office.

America's Hobby Center INC.

Please RUSH me the following: DEPT. TC-62
PLEASE PRINT

Name.....

Street Address..... Amount Enclosed.....

City..... Zone..... State.....

156 West 22nd St., New York 11, New York
1065 Broadway, Brooklyn 21, N. Y.
55 E. Washington Street, Chicago 2, Illinois
Rm. 230, 742 Market St., San Francisco 2, California
Rm. 306, 427 Carondelet St., New Orleans, La.
Gas & Electric Bldg., Denver 2, Colorado

Page	Quantity	Name & Description of Items	Cost Each	Total
➡	ONE ONE ONE	ENGINE TROUBLE TRACER & AID MANUAL SPEED INDICATOR CHARTS FLIGHT LOG BOOK	FREE with each order	
			Total	

24 HOUR SERVICE AT ALL TIMES

Only 25¢ each

Handy WORKBENCH EDITIONS of these famous Winston books (regularly $1.00 each) for only 25 cents each:

GLO ENGINE HANDBOOK. Tells all about the theory and operation of glo engines ☐

CONTROL LINERS. How to build and fly them. Covers the subject from A to Z ☐

GAS MODEL PLANE CONSTRUCTION. The answers to every problem you will ever meet ☐

NOW
Embry-Riddle

IS THE TIME

TO TAKE THE STEPS THAT WILL GIVE *YOU* LIFETIME SECURITY IN AVIATION!

RIGHT NOW...*TODAY*...OPPORTUNITIES FOR TRAINED AVIATION SPECIALISTS ARE "GOING BEGGING"! ONE YEAR FROM TODAY, THE DEMAND FOR CAREER MEN IN THE AVIATION INDUSTRY WILL BE *EVEN GREATER!*

Embry-Riddle can offer you *definite proof* of the above statement...or, to prove it to yourself, just read the "Help Wanted" columns of any of the big city newspapers!

This Is Your Opportunity...and Now Is The Time To Prepare For It! Embry-Riddle training is by far your quickest, surest road to the opportunities in the rapidly-growing aviation industry. Complete eight-mo. to two-year Embry-Riddle courses in every phase of aeronautics will fit you for a *big paying* job with a future! You learn fast and well at Embry-Riddle. You work with live aircraft and the finest equipment in vast shops and hangars...with the finest instructors. If you are now a high school student or a recent graduate, investigate at once the full advantages and guaranteed career security of Embry-Riddle training. If military service interrupts your studies...you're still a long way ahead of the crowd. Don't delay...write for complete information today.

Eligible Vets Still Accepted Under G. I. Bill of Rights! *Classes are beginning now...Send this coupon today! These complete eight-mo. to two-year Embry-Riddle courses are tailored to the pressing demands of the aviation industry!*

Aircraft & Engine Mechanics Vast numbers of *properly* trained A&E Mechanics are urgently needed. Our C.A.A. approved school assures quickest advancement. Embry-Riddle students learn fast with modern equipment, including jet...live aircraft, airline-size hangars.

Aeronautical Design and Technology Embry-Riddle's accelerated 26-mo. Aeronautical Design and Technology Course provides finest training available. Technicians with management responsibility enjoy highest salaries!

Commercial Pilot Embry-Riddle trained pilots benefit from our years of experience with 30,000 students...the best instructors, up-to-date aircraft, superb year-'round flying weather. Also Instrument and Instructor's ratings.

A&E Combined with Commercial Pilot Airmen with *dual* pilot-engineering ability are needed by aviation companies and operators. Embry-Riddle *combination* training offers you the most in your aviation career.

Embry-Riddle
International
SCHOOL OF AVIATION
MIAMI 30, FLORIDA

Dean of Enrollments - Dept. 97
Embry-Riddle School of Aviation
Miami 30, Florida

Please Print

NAME _____
ADDRESS _____
City _____
State _____ Age ____

I am interested in...
- ☐ A.&E. Mechanic
- ☐ Commercial Pilot
- ☐ Aeronautical Design and Technology
- ☐ A.&E. Combined with Commercial Pilot
- ☐ A & E Combined with Private Pilot

Check One ☐ Veteran ☐ Non-Veteran

TRAIN IN MIAMI--AIR CAPITAL OF THE WORLD

Ray Regalias' scale Consolidated XO-932, a beautiful R/C model. Unfortunately it didn't fly like prototype, so Ray's working on other jobs. Coast pix by W. J. MacKerracher.

R/C

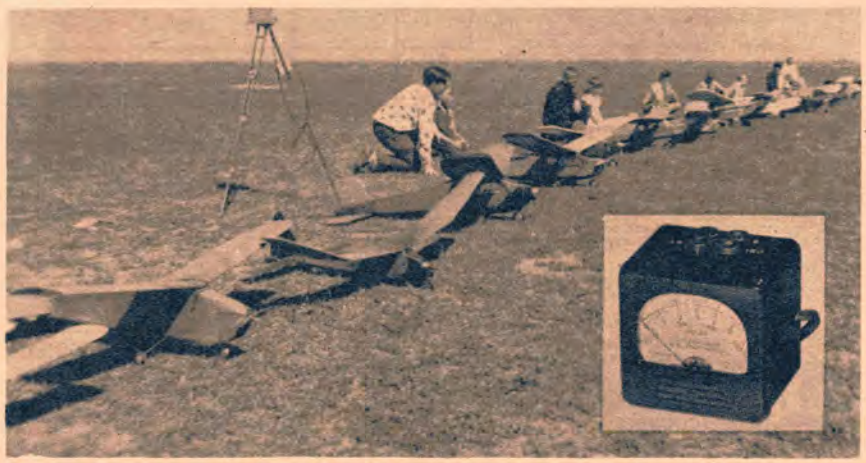
Around the modelplane radio-control circuit . . . comment and reports by a leading authority

■ Guess we've said almost all there is to say about our new 27.255 mc. spot in past isues. Now we *have* it. But let's make sure we *keep* it; remember that this is a sort of self-policing deal. If the users of this spot follow the rules, fine. But if some of the careless ones wander off frequency, use over the 5 watts input power, or operate without crystal control, we'll *all* be in trouble. So get your Form 505 in to the F.C.C., follow the rules, and we bet that 27.255 will be the biggest thing ever to happen in R/C.

Questions and Answers. Several readers can't locate the C.T.C. coil form we used in the A.T. Annual 27 mc. receiver. Control Research, Box 9, Hampton, Va. stocks this, as well as most of the other parts used in both transmitter and receiver. This form may also be had from the big mail order radio houses, such as Allied Radio, 833 Jackson Ave., Chicago 7, Ill.; it is their #72-294, sells for 46¢. J. L. Halman, Snyder, Texas, is perplexed as to the size wire to use on this coil form, and no wonder, for it was given as both #28 and #22. The former, as on the drawing, is correct.

Quite a few readers, including Chris Williams, Ed Novak and others are interested in Half-A R/C planes—they wonder what is the smallest span for practical use. This is a tough one, for it depends upon the flyer. If he can handle hot, heavily loaded ships, he should be able to get down to 3 ft. span, or a little less, and use an .049 engine. For the average builder (but not the beginner) the safe lower limit is probably around 40 in., using an .065 or an .074. We are polling midget ship experts and will have more on this for you soon.

Ed also wants to know if a Beechcraft 17—the job with the negative stagger—would make a good R/C ship. Not unless it were radically altered for more dihedral, larger tail surfaces and so on. An R/C design should *first* be a good stable free flight ship, *then* you can consider controlling it by radio. R/C in its present state of development in the model world is not able to keep an unstable ship on an even keel. This should also answer C. B. Messer who wondered if (*Continued on page* 57)



Line-up of R/C jobs at Pacific Coast Radio Control Society's 2-day meet near Fresno. 18 entries ranged from Bill Butler's .09 to Ed King's 9-footer. Insert: McNabb Meter.

It's GUILLOW's for the hottest JETS and in-the-news warplanes!

Easy to build DIE-CUT BALSA SHELF MODEL KITS

BOEING B-47 STRATOJET · LOCKHEED F-80 SHOOTING STAR · MCDONNELL F2H-1 BANSHEE · N. A. B-45 TORNADO · N. A. F-86 SABRE

VOUGHT F7U CUTLASS · REPUBLIC F-84 THUNDERJET · NORTHROP F-89 SCORPION · RUSSIAN MIG-15 · GRUMMAN F9F PANTHER

HERE'S 4 BRAND NEW MODELS - EACH A HONEY!

FAIRCHILD C-119 PACKET

A new Air Force transport that can carry 15 tons of heavy machinery or 65 paratroopers over 1100 miles. Successor to the famous C-82.

CONVAIR B-36 BOMBER

America's intercontinental atom bomber. A 10-engined giant capable of attacking European targets from U. S. bases.

NORTH AMERICAN T-28 TRAINER

Now in service, this newest Air Forces trainer is the first of its kind to feature a tricycle landing gear.

MARTIN B-57A CANBERRA

A twin-jet bomber with fighter-like lines. An English-Electric design being built in the U. S. by Glenn L. Martin.

LOOK! MORE FIGHTERS · BOMBERS · HELICOPTERS!

LOCKHEED C-69 CONSTELLATION · BOEING B-29 SUPERFORTRESS · N. A. P-51 MUSTANG · DOUGLAS AD-1 SKYRAIDER · CURTISS P-40 WARHAWK

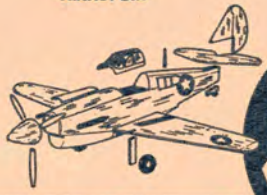
LOCKHEED P-38 LIGHTNING · REPUBLIC P-47 THUNDERBOLT · VOUGHT F4U-1 CORSAIR · TRANSPORT · SIKORSKY H-5

SPECIAL Value IN EACH KIT!

PLASTIC CANOPY OR PROP DISKS · WING AND FUSELAGE INSIGNIA

THE DIE-CUT PARTS GO TOGETHER LIKE MAGIC!

See your local dealer for Guillow kits – if not available, send direct to factory adding 15¢ to all mail orders.



ONLY 25¢ EACH

PAUL K. GUILLOW, WAKEFIELD, MASS.

HEY GANG!
. . . take a look across the page for
NEW AUTHENTI-CARVED giant solid scale kits
SEE YOUR GREAT BY ENTERPRISE KITS AT YOUR DEALERS, TODAY

SUPER "KNOCK-OUT" Class "A-B" Controline $3.50 plus 25c by mail

"SKY-LEADER" Class "½A" Controline $2.50 plus 20c by mail

"BABY ERA BIPE" .045 to .09 Displacement $2.50 plus 20c by mail

"BABY ERA" 18" Span Controline .045 to .09 Engines $2.50 plus 20c by mail

"TOWLINE TERROR" $1.00 plus 20c by mail 24" Span Glider Ready to Assemble

"KNOCK OUT" 18" Span Controline .045 to .09 Engines $2.50 Plus 20c by mail

"CHAMPION 36" 36" Span Controline .045 to .09 Engines AMA 957L $2.50 plus 20c by mail

"COMBAT ACES" EACH ONLY $2.50 plus 20c by mail
Carved Fuselage SOLID SCALES! Plastic—Metal Parts Fully Carved Fuselages
"MIG-15" RUSSIAN JET
F-80 "SHOOTING STAR"
F-84 "THUNDERJET"
F-9F "PANTHER"
F-51 "MUSTANG"
F-86 "SABRE-JET"

NEW "RAZOR CUT" Rubber Powered Flying Scale "NIFTIES"
MONOCOUPE
AERONCA CHAMPION
Each Only 50¢ plus 25c by mail
PIPER CUB SPECIAL
TAYLORCRAFT

ENTERPRISE
MODEL AIRCRAFT AND SUPPLY CO. INC.
5107 AVENUE D DEPT. AT-62 BROOKLYN 3, N. Y.

air notes | AVIATION TODAY AND TOMORROW

TRANSATLANTIC TOURIST flights proving popular. TWA already booked 78 to 100 per cent full through July. New York to London $290 one way, $522 round trip.

●

U.S. ARMY took delivery of its first Sikorsky H-19 ten-place helicopter, has ordered about 100. . . . NEW PARACHUTE weighing 22 lbs. (20% less than standard chute) is free of oscillation and opens automatically—developed by Air Research & Development Command. . . . ASSAULT on world's altitude record for rockets to be made by Glenn L. Martin Co. and Navy Research Laboratory, with a new type Martin Viking rocket. Record is 135 miles, attained by a Viking at White Sands, N.M. . . . AERO COMMANDER, twin-engine light executive transport, granted Type Certificate by the CAA.

●

CHECK OF INCOMING MAIL at "AT" office indicates only 35% of aircraft industry uses airmail where possible; airlines, airplane manufacturers & ad agencies handling aviation accounts among worst offenders; "AT" readers use airmail more than air industry.

●

POOR MAN'S ADF: An automatic direction finding device, only a fraction of the cost of similar equipment used by the airlines and military services, is being installed on a number of Piper Pacer and Tri-Pacer lightplanes. The simplified navigational system permits installation of a reasonably accurate direction-finding and homing equipment for less than $90.

●

SHOWN BELOW is the latest version of the Republic F-84F Thunderjet. This one is a photo reconnaissance version featuring wing root air intakes for the 6000 lb. thrust Wright J-67 Sapphire engine. Plane has camera equipment in nose and is armed with four .50 cal. machine guns in wings. Long-range fighter-bomber model also with similar air intake can fly an external load of 4000 lbs. and is armed with six .50-caliber machine guns, four in the nose and two in wings. For long-range missions has two 450-gallon wing tanks.

●

THERE are more multi-engine executive planes (1380) in the United States than commercial air transports (1175). . . . THREE Republic Thunderjets were flown across the Atlantic to France inaugurating first delivery by air of U.S. fighters to North Atlantic Treaty Organization nations. . . . A PLASTIC delta-shaped airplane is in experimental stage in England. Plane not expected to fly for a couple of years.

●

NINETY MiG-15's, six Pe-2's, and a number of Tu-2a's and Il-26's were counted at the Russian Air Force Base 30 miles northeast of Berlin. . . . FRENCH aviation concern Aero Sud-Est has been licensed to build Sikorsky S-55 12-place helicopters. . . . TENTH Anniversary of American jet engine celebrated by General Electric Co. with dedication of Aircraft Gas Turbine Division plant at Lockland, Ohio.

●

CESSNA AIRCRAFT CO. has acquired control of Seibel Helicopter Co. . . . NAVY designation letter for Lockheed "O" has been changed to "V" to avoid confusion as it often has been mistaken for numeral "Zero," especially when following a numeral as in Constellation whose letter designation was R7O. New designation for this ship is R7V. . . . FRENCH AIR FORCE has on order 350 Dassault MD-450 Ouragan and a similar number of MD-452 Mystere jet fighters. Recent announcement by the Mutual Security Agency that the Mystere bested, in test, the American Sabre, was challenged by Department of Defense and North American Aviation who stated that F-86A type Sabre, now long out of production, was basis of comparison and then only as pacer and observer craft.

●

RCAF has on order 48 Fairchild C-119 Flying Boxcars and six troop-carrying Piasecki helicopters. . . . NATIONAL AIR RACES to be held this year at Wayne Major Airport, Detroit, Mich., from August 30 to September 2.

Letters

(Continued from page 8)

The Mustang's Spread . . . I've seen an article that said the F-51 Mustang had a 40 ft. wingspan and another article that said it had a 37 ft. wingspan. Which is correct?

Tom Marcum, McGregor, Minn.

• The wingspan of the F-51 Mustang is 37 feet.

Dyna-Jet and Red Head . . . What is the difference between the Standard Dyna-Jet engine and the Red Head Dyna-Jet engine?

Marshall R. Sherrill, Jr., Arlington Heights, Ill.

• The principal difference between the Standard Dyna-Jet and the Red Head lies in the fact that the Red Head produces a guaranteed static thrust in excess of 4¼ pounds, whereas the Standard produces a guaranteed static thrust of only 3½ pounds. This increase in thrust is obtained through detailed changes in the design, coupled with special tuning at the factory.

The Standard Dyna-Jet engine is no longer in production, and it is not likely that this engine will be reintroduced on the market.

Airacobra . . . I am building a P-33 Airacobra and would like to know what year it was produced and what speed it had. Also how many in its crew.

Winton Lindsay, Detroit, Mich.

• The Airacobra was built in 1939. A single-place fighter, its speed was around 325 mph.

F4U-1 and F4U-5 . . . What is the difference between the F4U-5 and Corsair and the F4U-1 Corsair?

Would any plans be available of either of these planes, as I would like to build one?

Jack Wolfe, Johnson City, N. Y.

• There is a considerable difference between the F4U-1 and F4U-5, though both have the same span and outwardly look alike. The F4U-5 has a four-bladed propeller while the F4U-1 has a three-bladed one. Engine of the F4U-5 develops 2400 hp, 400 hp more than F4U-1's—the "5" also has a longer fuselage, different shape engine cowling and a different cockpit enclosure. Sorry, we have no plans of these airplanes, but some of our advertisers have Corsair kits available.

Mid-jet Racers . . . I was particularly interested in your article concerning Mid-jet Racers. I would like to know if at present there have been any specifications set up in regard to engine size.

In your article you mentioned the 330 lb. thrust Palas. Would you please tell me who makes this engine and what their address is?

Guy E. Scribner, Rockville, Conn.

• No specifications for jet-powered midget racers have been set up.

The Palas jet engine will be manufactured by Continental Aviation & Engineering Corp., 1500 Algonquin Ave., Detroit 14, Mich.

Speed questions . . . Will you please tell me which is faster, the F-84E Thunderjet or the F-86 Sabre, and is the F3H-1 Demon faster than the F7U-3 Cutlass? Did Pratt & Whitney have a 10,000 lb. thrust engine designated the J-57? Also, which is faster, the F-91 or the XF-92A?

Thomas Williams, Bronx, N. Y.

• The F-86 is faster than the F-84E. Sorry, but the performance data of the F3H-1, F7U-3, F-92 and F-91 has not been released by the Department of Defense.

Pratt & Whitney is building a J-57 jet engine which is supposed to be more powerful than any other production jet, but no official figures on it have been released.

Pitmen for Plymouths . . . I am hoping to be able to take in a few contests this summer and it being my first time I would like to know whether there is someone there who will act as pitman for contestants or must they take someone with them or ask someone to help? The contests I am speaking of are not large affairs but they are Plymouth sponsored events.

Neal Howard Jr., Danville, Va.

• Pitmen are not provided at meets. Can't you "buddy up" with a fellow flyer from your own town and help one another?

Plans for Juniors . . . Maybe you could give me some advice on a contest for us kids. I am a member, with my Dad, of the Gas Hawks Club here in Iowa City. We have been trying to get Junior Members like me for the Club, and have succeeded in getting a few. But the trouble is, the rules have to be changed quite a bit.

Don Haymes, Iowa City, Iowa

• We would suggest all the young members have one week to build a specified simple model. Then at the next meeting each new flyer teams up with an expert by drawing expert member's name out of a hat. Each team then tries to get maximum duration out of the models.

Wants to Build Jet Engine . . . I am experimenting with jet and rocket motors and have been doing so for the past three years. I have constructed various rockets and ranging from black powder to nitric acid and aniline. The black powder leaves an awful mess in the motor and frequently clogs the venturi, causing a violent explosion. The nitric acid readily attacks metal, clothes and if you don't mind my saying so, the experimenter. As of now I haven't found a fuel suitable for rocket motors and would appreciate any information you can give me on it.

Next I considered the pulse-jet motor similar to the Dyna-jet, only not as large. I would like to build one about six inches long and about two inches in dia. I have no plans with which to work and wondered if you could tell me where I might locate some. I have all the necessary tools to build them, and would appreciate any information on either.

Roger Stephens, 1517-25th St., Longview, Wash.

• Can anybody help the gentleman?

Not Yet Kitted . . . The February issue of Air Trails had an A/2 Team Racing model called the Bonnie Lass. I would appreciate knowing who makes these as I have already had a dozen calls for this model. Where can I get the Bonnie Lass kit?

East Side Model Shop, Morenci, Ariz.

• Manufacturers—take note!

From the Civil Air Patrol . . . The New Mexico Wing appreciates the interest your magazine has taken in forwarding to us names of those interested in Civil Air Patrol within our state.

Many a new Unit has been organized through your contacts, thereby introducing CAP to sections of the state where it was previously unknown.

Major Keith S. Lowell, New Mexico Wing, CAP

. . . This Headquarters acknowledges with appreciation communications you have received from individuals desiring membership in the Civil Air Patrol.

Lt. Col. Nanette M. Spears, New Jersey Wing, CAP

. . . We thank you kindly for the names of various individuals who are interested in receiving information regarding membership in Civil Air Patrol.

Your continued interest in Civil Air Patrol is very much appreciated.

Edwin H. Weig, Illinois Wing, CAP

He Knew Bill Barnes . . . Have been a reader of your magazine since Bill Barnes was flying the Bumble Bee. But at present my earliest copy is April 1936. All my other copies or most of them were given away by mistake while I was overseas.

I can truly say that I have seen your magazine grow from a dime novel to one of the best of its type on the market today.

Sgt. G. F. MacPherson, Camp Petawawa, Can.

New A-Aer Reporting . . . I have just finished your Air Adventurers ship #2 (glider) and she flies swell! I'm a very enthusiastic modeleer and an A.M.A. member.

Robert Jenefsky, Newark, N. J.

Dad Distrusts Dope . . . Much to my dismay my father accuses my airplane dope of all sicknesses in the family. He tells me "dope" contains poison and shouldn't be allowed. He has tried to talk me into stamp collecting, etc., but with no success for I guess I am too far gone. Could you please clear this up for me, for every time anyone gets sick, under the bed go my models. If they are poisonous—how much? And how could I use them?

Stanley Peak, Brooklyn, N. Y.

• Tell your Dad, Stan, that the A(merican) M(edical) A(ssociation) has never entered any objections with the A(cademy) (of) M(odel) A(eronautics).

keep your sights on..

AUTHENTI-CARVED SOLIDS BY ENTERPRISE

ALL MODELS ARE LARGE 1/4" EXACT SOLID SCALE..!

History Making Jet Combat planes now dog-fighting in the Korean skies are brought to you in four 1/4" solid scale models by ENTERPRISE! Each LARGE kit really complete with necessary plastic molded parts—NO EXTRA JUNK!

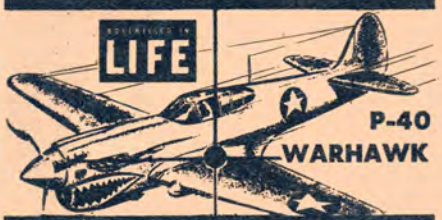
Only $1.00 each plus 20c by mail

MIG-15 RUSSIAN JET

all kits with:
★ Finished Authenti-Carved Fuselages!
★ Razor-Cut Wings & Tail Surfaces!

F-86 SABRE JET

all kits with:
★ Full Color Authentic Decal Markings!



P-40 WARHAWK

all kits with:
★ Genuine Injection Molded Plastic Noses, Props & Crystal Clear Canopies!

F-51 MUSTANG

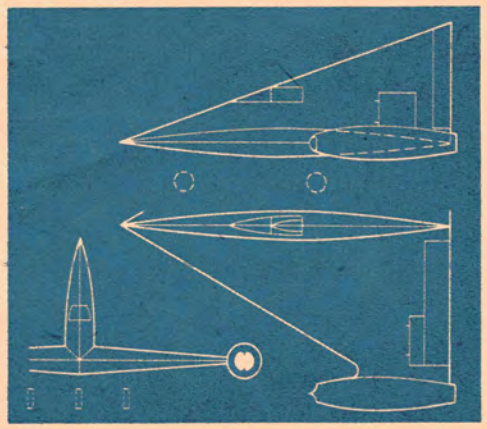
all kits with:
★ Exact Scale Plans, Complete Parts!

Makers of Famous Combat Aces, Control Lines & Nifties

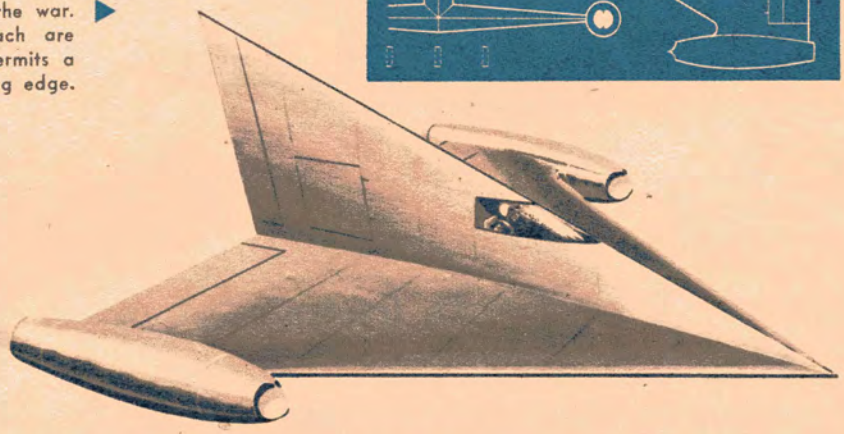
ENTERPRISE MODEL AIRCRAFT & SUPPLY CO., INC.
"America's Greatest Name in Model Aviation"
5107 Avenue D, Dept. AT-62, Brooklyn 3, N. Y.

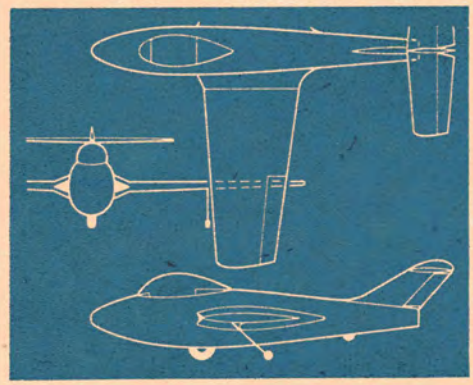
SEE OUR AD ON OPPOSITE PAGE

Airmen of Vision
DESIGN COMPETITION

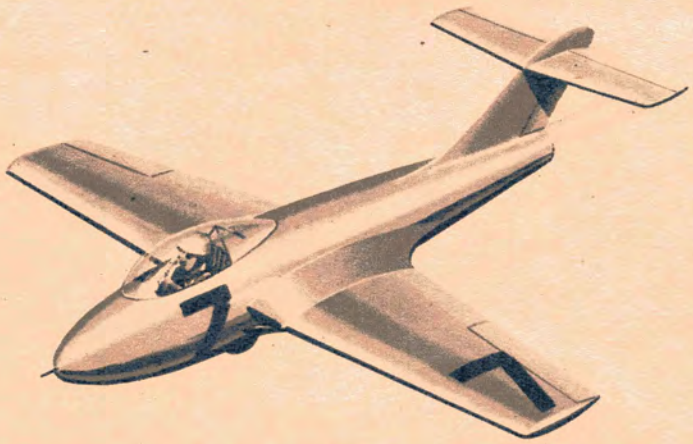


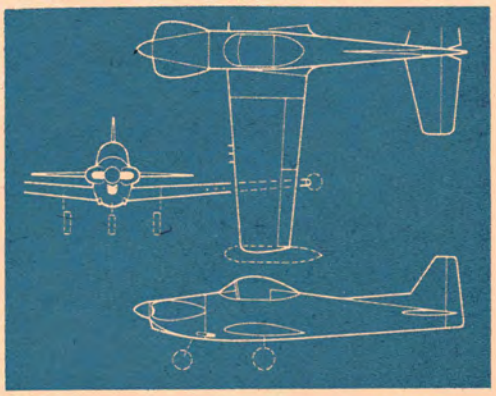
Selected as the best of this month's is the Delta Paper Dart, interceptor by Joe Heim of Detroit, Mich. This design is very similar to the Lippisch Delta under development in Germany towards the end of the war. Two turbojet engines of 6000 lbs. thrust each are mounted on wingtips. Very large wing area permits a generous supply of fuel. Span is 18 ft. at trailing edge.



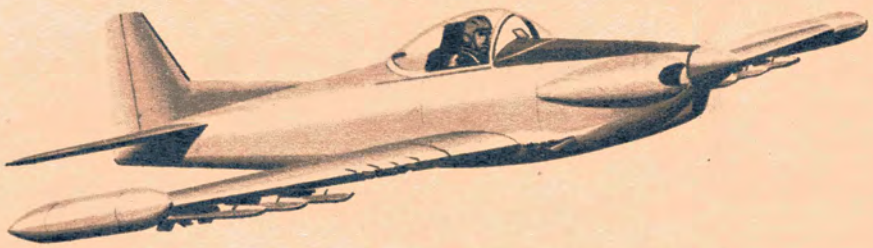


Here's a very neat Mid-Jet racing plane by Eugene F. Taylor (age 14) of Jersey City, N. J. Main landing gear consists of one wheel mounted in the bottom of fuselage and a small tail wheel. For balance there are outriggers at wingtips. Span of 18 ft., length 14 ft. Engine a 330-lb.-thrust turbojet. Speed over 300 mph.





Designer George Johnson of Louisville, Ky., sent in this anti-tank plane. Armament consists of six cal. .30 machine guns and six 5" hollow charge rockets. Navy version, capable of operating from carrier deck, has folded wings. When heavily loaded with rockets and tip tanks there is provision for jato bottles. Wingspan is 34 ft. and power provided by a 200 hp flat six. Top speed is 200 mph.



Air Trails has opened its columns to those who are interested in presenting plans for "aircraft of the future." Rules governing the competition are as follows: Three-view sketches of the proposed aircraft will be required. These should be not less than 8½ x 11 inches for the entire three-views. Give sketches of the complete airplane in three-quarter front and rear positions. Photos of a model of proposed design may be included. Information of power plant(s) estimated performance, dimensions, and explanations of any unusual features are required. Data as to age, occupation or schooling of the entrant will be welcomed by the editors and judges. The designs may be of any type: commercial aireraft, military planes (fighters, bombers, troop transports,) planes for the private flyer and single-engine sporting or racing craft. The entry each month judged the most practical or of the greatest significance will receive an award of $25. Payments of $5 will go to the runners-up. Entries will not be returned and for that reason those participating should keep copies of all material submitted. Mail entries to Airmen of Vision, c/o Air Trails, 304 E. 45th St., New York 17, N. Y. Edtiors regret that because of large number of entries they cannot enter into correspondence on A. of V.

Trained Technicians...

ARE CLEARED TO COME IN!

Special skills expertly maintain the global operations of our expanding United States Air Force. It is special skills of trained craftsmen, behind the flying skills, that keep our modern air power aloft to defend our nation.

Men with training as former specialists in any Service . . . or non-veterans with special technical talents . . . are needed *now* to support our ever-growing air might. Radio, radar and other communications specialists, weather, armament, automotive maintenance, medical technicians and many technical skills are urgently needed . . . now . . . today!

For your specialized "know-how," your Air Force offers greater opportunities for advancement, security and a rewarding sense of an important job well done.

Here, briefly is the story: If qualified, you can enter the Air Force in an attractive grade, according to your present ability. The Air Force will tell you exactly what your initial rank and pay grade will be before you join-up. Veterans, if qualified, enter in their old grade or better and will skip basic training and be assigned initially to a nearby Air Force Base.

For the rest of the story in detail, consult your local U. S. Army-U. S. Air Force Recruiting Station immediately, or *mail coupon today!*

MAIL COUPON TODAY *for Full Information*

AIRMAN PROCUREMENT
Headquarters, U. S. Air Force
Washington 25, D. C.

Please send me details about U. S. Air Force specialists.

*NAME*_____

*ADDRESS*_____

*CITY*_____ *ZONE*_____ *STATE*_____

*SPECIALTY*_____

U.S. AIR FORCE

Don't let anyone tell you there are no more frontiers for young men to conquer. Aviation is today where the automotive industry was fifty years ago. What opportunities for young men with ability, vision and training! Two young, former employees of SPARTAN, now operate a profitable aluminum fabricating plant and a machine shop. Many former students occupy positions of trust, importance and security with airlines, airframe, engine and accessory manufacturers. Others are independent operators—successful and happy with their positions in life.

You can follow in their footsteps to success; but you must have the necessary training. Don't put it off. While you are thinking it over, some other young man will be training for the job you want. Start Now! SPARTAN CAN SHOW YOU THE WAY!

Write for complete information. If you have a specific problem, a letter will bring a quick reply. SPARTAN wants to help start you on the way to success.

No Correspondence Courses

SPARTAN
A UNIVERSITY OF AVIATION

SCHOOL of AERONAUTICS — MAXWELL W. BALFOUR, DIRECTOR
COLLEGE of ENGINEERING — ADDRESS DEPT. AT-62

TULSA, OKLAHOMA

MARK AND MAIL NOW

Maxwell W. Balfour, Director
Spartan School of Aeronautics Dept. AT-62
Tulsa, Oklahoma
Please send your free Catalog immediately.

Name_____ Age____
Address_____
City_____ State____

Indicate which of these branches interests you.
☐ Flight ☐ Instruments
☐ Mechanics ☐ Aeronautical Engineering
☐ Radio ☐ Airline Maintenance Engineering
☐ Meteorology ☐ Flight Engineer

Spartan is approved for training under the G. I. Bill of Rights

AIR ADVENTURERS CLUB

■ Whether or not you realize it, you model building Air Adventurers are constructing a foundation for a future in aviation.

Model building and flying is more than just fun. It is learning many things important to a possible future in aviation, and learning them in a very painless way. Skill with your hands, the ability and patience to follow intricate plans, the ingenuity to develop your own ideas, and the dexterity to adjust and fly your finished models are some of those things. Far greater than even these is the vast store of aeronautical knowledge that you are picking up along the way.

This is not merely "book larnin' aeronautics" but the real thing, and absorbed so enthusiastically that it really sticks. How do we know that it sticks and pays off? Well, for example, some of the top men in aviation today, the kind of names that have made and are making aviation history, were model builders, like you, when they were your age.

Take for instance Charles H. Kaman, president of Kaman Aircraft Corporation, builders of the famous line of helicopters. He started building models and flying them at the age of six! Hardly out of kindergarten, young Charles began to design and fly his own rubber-powered models—and they flew well. He kept right on, even while attending Catholic University, and left his name neatly printed in more than one record book along the way.

Down at the Glenn L. Martin Company in Baltimore is a pretty rugged chap named O. E. (Pat) Tibbs, Chief of Flight Test. He has logged over 6000 hours in more than 100 basic types of aircraft. He's tested over 35 hot designs for Martin, including several jets, and he's also tested some pretty slick little one-cylinder jobs. That's right—one cylinder jobs. He's a U-control fan!

Out on the Coast at the sprawling Boeing plant in Seattle you can talk with such men as Edward C. Wells, Boeing Airplane Company's vice president for engineering, winner of the Sperry Award for 1942 for outstanding aeronautical engineering design. He had much to do with the basic design of the B-17, the B-29, the B-47 jet bomber and the new giant B-52. He started model building at the age of ten.

Marvin L. Michael, Boeing test pilot who has tested most of their hottest designs, started out as a youngster designing, building and flying his own models.

Another top Boeing man is Robert M. Robbins, project engineer for the Stratojet bomber, project pilot for the B-29 and engineering project man for other big Boeing undertakings. He was a model builder for years before he entered MIT to study aero engineering.

Head of Boeing's wood and plaster department, Claude Hill, who used to build super-accurate wind tunnel models, scale models for historical displays and other important model aircraft, started out as you may be doing: building and flying rubber-powered models.

No other name in big aircraft building stands for so much, or is as well known through his product, as that of Donald W. Douglas, president of Douglas Aircraft Company. This giant personality among many in a giant industry, believes in the skill of the model builder, whether "ex" or active, as a valuable foundation for almost any job in aviation. Many of his thousands of employees once were, or are even still model builders. He can't deny it can even lead to the top, for Donald Douglas himself was an avid model builder.

You smart young Air Adventurers interested in aviation as a career would do well (if you have not already tried it) turning your hands to model aircraft building and flying. You will be amazed to find that all the full-scale aircraft theories, flight characteristics and rigging formulas hold equally true for model planes. You will become first-hand-familiar with the use of aeronautical terms, types of construction, pilotage, and types of aircraft. You will absorb the many details of construction, design and flying skill and learn how they are molded together for a successful model building and flying project.

AGE LIMITS: There are no minimum or maximum age limitations on Air Adventurers Club membership

MAIL TO: Air Adventurers, c/o Air Trails, 304 East 45th Street, New York 17, N. Y. Print all information required on the application; sign where indicated.

I hereby apply for membership in the Air Adventurers Club and promise to do everything in my power to uphold the principles of the organization and work for the advancement of American aviation. I enclose 25¢ in well wrapped coins for my credentials ☐; 50¢ for credentials *and pin* ☐—(indicate which).

.....
(Name—Print)

.....
(Street address—print)

.....
(City—print) (Zone) (State)

.....
(Age) (Sign here) (AT652)

Plymouth announces the 6th International Model Plane Contest

AUGUST 20 THROUGH 25—DETROIT, MICHIGAN

Bigger, better, more exciting than ever, the 1952 "Olympic games of model aviation"—the 6th International Model Plane Contest—will be staged by Plymouth Motor Corporation in Detroit, Mich., next August 20-25.

There will again be superb flying arrangements for free flight events, with plenty of room and every facility for retrieving planes. There will be excellent conditions, too, for speed, stunt, flying scale and carrier deck events. The annual banquet will again highlight the entertainment program.

The competition is divided into three different age groups: Freshman—8 years old, but not yet 12; Junior—12 to 15, but not yet 16; and Senior—16 to 20, but not yet 21. Ages are calculated as of July 1, 1952.

Here's a list of events and awards for 6th International

FRESHMAN

Outdoor Rubber (Unlimited)
Hand Launched Glider, Class A
Free Flight Gas, Class ½A
Control Line Speed, Class A
Control Line Stunt, Class ABCD

FRESHMAN AWARDS:

1st, 2nd and 3rd Places—Trophies
High Point—Trophy and $100 Bond
2nd High Point—Trophy and $50 Bond
3rd High Point—Trophy and $25 Bond

JUNIOR

Outdoor Rubber (Unlimited)
Free Flight Gas, Classes ½A, A, BC
Control Line Speed, Classes A, B, CD
Control Line Speed, Jet
Control Line Stunt, Class ABCD
Control Line Scale, Class ABCD
Control Line Team Racing, Class B
Navy Carrier Deck
Combat

JUNIOR AWARDS:

1st Place—Trophy and $100 Bond
2nd Place—Trophy and $50 Bond
3rd Place—Trophy and $25 Bond
High Point—Trophy

SENIOR

Outdoor Rubber (Unlimited)
Hand Launched Glider, Class A
Free Flight Gas, Classes ½A, A, BC
Control Line Speed, Classes A, B, CD
Control Line Speed, Jet
Control Line Stunt, Class ABCD
Control Line Scale, Class ABCD
Control Line Team Racing, Class B
Navy Carrier Deck
Combat

SENIOR AWARDS:

1st Place—Trophy and $100 Bond
2nd Place—Trophy and $50 Bond
3rd Place—Trophy and $25 Bond
High Point—Trophy

A Youth Activity Sponsored by **Plymouth**
MOTOR CORPORATION, DETROIT 31, MICHIGAN

• For complete details, rule books and entry blanks, see your nearby Plymouth dealer. Entries close July 27, 1952.

SOMETHING NEW

HAS BEEN ADDED TO

PAA Load Events!

Win a handsome BULOVA WATCH!

• Clippers* fly on Bulova time... and so can *you.* Now you can win a dependable Bulova watch—and cash prizes, too.

PAA Load Events have become an outstanding free flight competition at many local and regional meets—a highlight at the Nationals. They provide model flying that brings out the basic purpose of flying itself: *to carry a payload.* It's playing the game for "real."

For 1952 rules and specifications, write: Educational Director, 28-19 Bridge Plaza North, Long Island City 1, New York.

1952 Nationals
July 27 - August 3
U.S. Naval Air Station
Los Alamitos, California

PAA Load Event Awards
(All classifications)

1st . $100 and Bulova watch
2nd . $ 50 and Bulova watch
3rd, 4th, 5th . Bulova watches

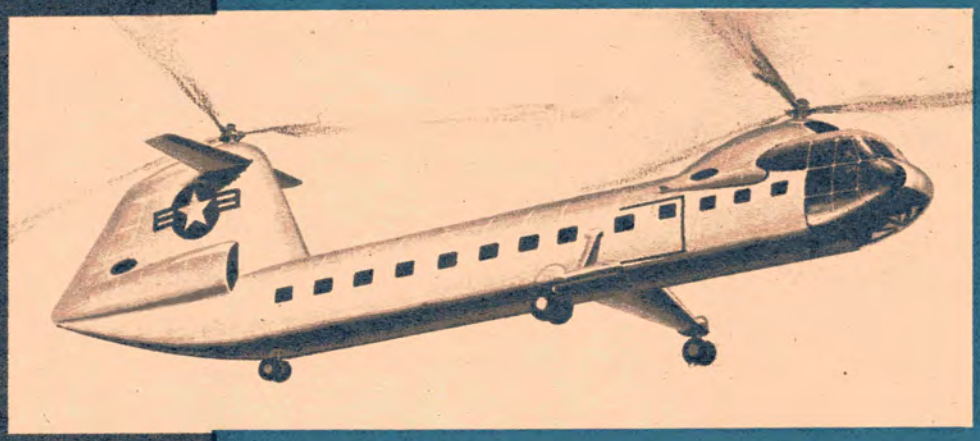
The champs are going to be wearing Bulova watches.

PAN AMERICAN

WORLD'S MOST EXPERIENCED AIRLINE

*Trade-Mark, Reg. U. S. Pat. Off.

Farewell to the Fixed Wing...?



UNITED STATES. Piasecki XH-16, transport helicopter, largest copter in the world. Fuselage is same size as Convairliner, 77 ft. 6 in. 40 passengers or 32 litters. May be equipped with under belly capsule. Two P&W R-2180 engines of 1650 hp each.

FRANCE. Sud-Ouest SO-1120 "Ariel" turbine-powered helicopter. Turbomeca Artouste engine in fuselage drives compressor which delivers air to combustion chambers, on rotor tips, where fuel ignites, giving drive for blades. Rotor 35' 5".

GREAT BRITAIN. Bristol 173. 14-place transport helicopter powered by two Alvis Leonides engines of 570 hp each. Rotors are so coupled that they can be driven by one engine. Rotor diameter 48 ft. 7 in. Will be used for intercity flights.

No radical development in aircraft lift principle has made such rapid strides, or gained such universal acceptance as the rotary wing craft. It's caused serious inroads into field dominated by fixed wings

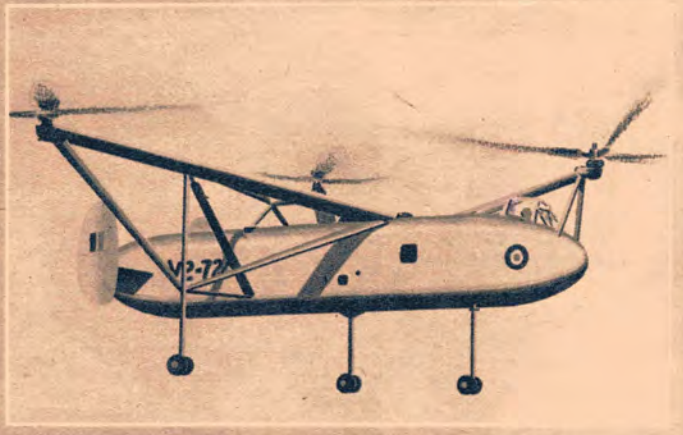
FAREWELL TO THE FIXED WING . . . ?

MC-4 tandem rotor two-place helicopter by McCulloch Motors Corp. of Los Angeles, Calif. It is powered by a 200 hp flat six Franklin engine and capable of speed of 115 mph. McCulloch formerly designed and built small 65 hp engine for radio-controlled drones.

XJHD-1 large twin-engined, twin-rotor experimental military helicopter built by McDonnell Aircraft Corp., St. Louis, Mo. Gross weight is close to 12,000 lbs. Power to rotors is supplied by two 450 hp Pratt & Whitney engines. Equipment includes power winch for air rescue work.

S4A by Seibel Helicopter Co., Wichita, Kans. Will be produced for the Army carrying designation YH-24. Powered by a 125 hp Lycoming engine. Rotor diameter is 29 ft., weight empty 1000 lbs. Craft has a top speed of 75 mph and a range of 120 miles. Carries a crew of two.

H-19 produced by Sikorsky Aircraft, Bridgeport, Conn. Navy designation HO4S, civilian S-55. Can carry 10 to 12 people and is the largest helicopter to see service in Korea; used for transportation of wounded and rescue work. Powered by 600 hp P&W engine located in the nose.



Saro-Cierva Air Horse, Saunders-Roe Ltd., Southampton, England. Has been specially developed for pest control work but will also be produced as 24-passenger transport, or as a freighter. Gross weight in vicinity of 17,000 lbs. Powered by a 1600 hp Rolls Royce Marlin engine.

When Igor Sikorsky took up his first experimental helicopter, the VS-300, in 1940 many prophets predicted that vertical-lift aircraft would never grow to a size necessary for a practical weight lifter. It might prove fine for personal transportation of four or five people at most, they said, but as a weight carrier—never. Ten years later the helicopter proved how wrong they were. Today there are machines in process of manufacture which can lift 40 passengers, and on less horse power than airliners of equal seating capacity. Though still slow, in comparison with fixed wing aircraft, the helicopter has the ability to take off and land at its actual destination, not some 10 miles from it, thus saving considerable time.

To the agile-acting helicopter, thousands of our wounded in Korea owe their lives, as only this type of craft was able to evacuate them from the rugged terrain of the Far Eastern battlefront. There are big things brewing for it in the near future, both in military as well as commercial transportation field.

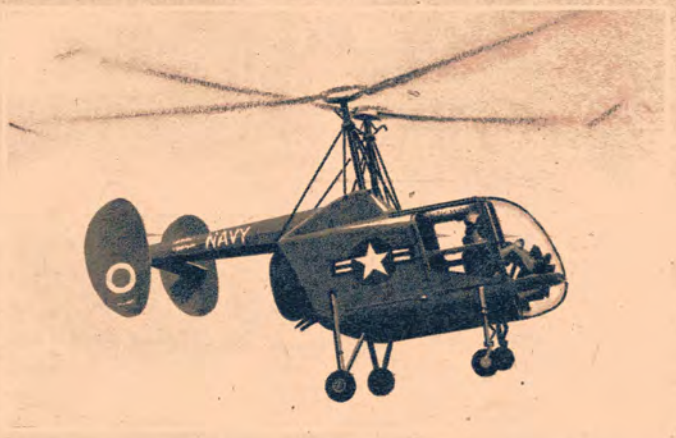
XA-6 Buck Private designed by American Helicopter Co., Manhattan Beach, Calif. Powered by two pulse-jet engines of 35 lbs. thrust each, it approaches the utmost in design simplicity. Screw driver and crescent wrench are all the tools required for disassembly and maintenance.

XHSL-1 by Bell Aircraft Corp., Buffalo, N. Y. Large tandem rotor helicopter to be used by Navy for anti-submarine warfare. Has a 2,000 hp Pratt & Whitney engine. Rotors incorporate Bell's famous stabilizing bar and can be folded for stowage on carrier hangar deck.

LZ-4, Doman Helicopters, Inc., Danbury, Conn. Has four-bladed rotor with hingeless flexible blades pioneered by Doman. Carries crew of two. Another LZ-5, a 5-6 place helicopter, will be built for Armed Forces under the designation of YH-31: ambulance and transport.

Saro-Cierva Skeeter, Saunders-Roe Ltd. Southhampton, England. Small helicopter carrying crew of two, powered by 180 hp Blackburn Cirrus Bombardier. Mark 4 shown here is Navy version; civilian model has a 145 hp Gypsy Major. Diameter of blades 32 ft.

Hiller Hornet, Hiller Helicopters, Palo Alto, Calif. Powered by two ramjet engines each developing 31 lbs. thrust and weighing only 11 lbs. A stripped-down version of Hornet reached altitude of 7500 ft. Rotor diameter 23 ft. Top speed 80 mph. Range with two, 50 mi.



HTK-1, Kaman Aircraft Corp., Windsor Lock, Conn. Navy helicopter, featuring twin intermeshing rotor blades. Powered by 240 hp Lycoming engine, can carry 3 or 4. Converted to ambulance, accommodates one litter patient and one walking casualty in addition to pilot.

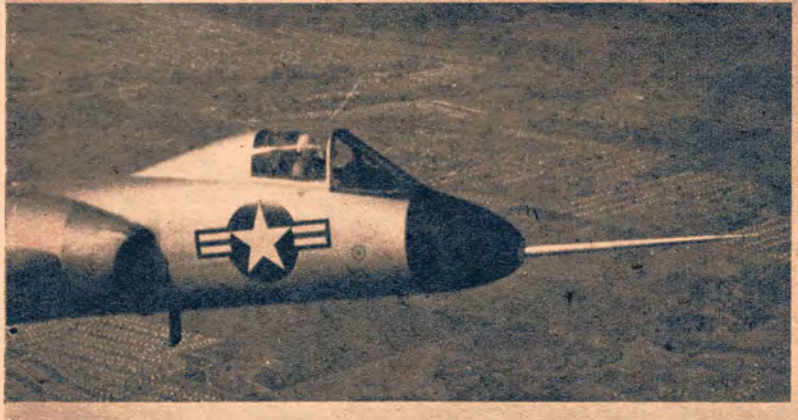
Development Highlights

North American FJ-1 in foreground with its successor the FJ-2. Similar to F-86, FJ-2 has four 20-mm cannon.

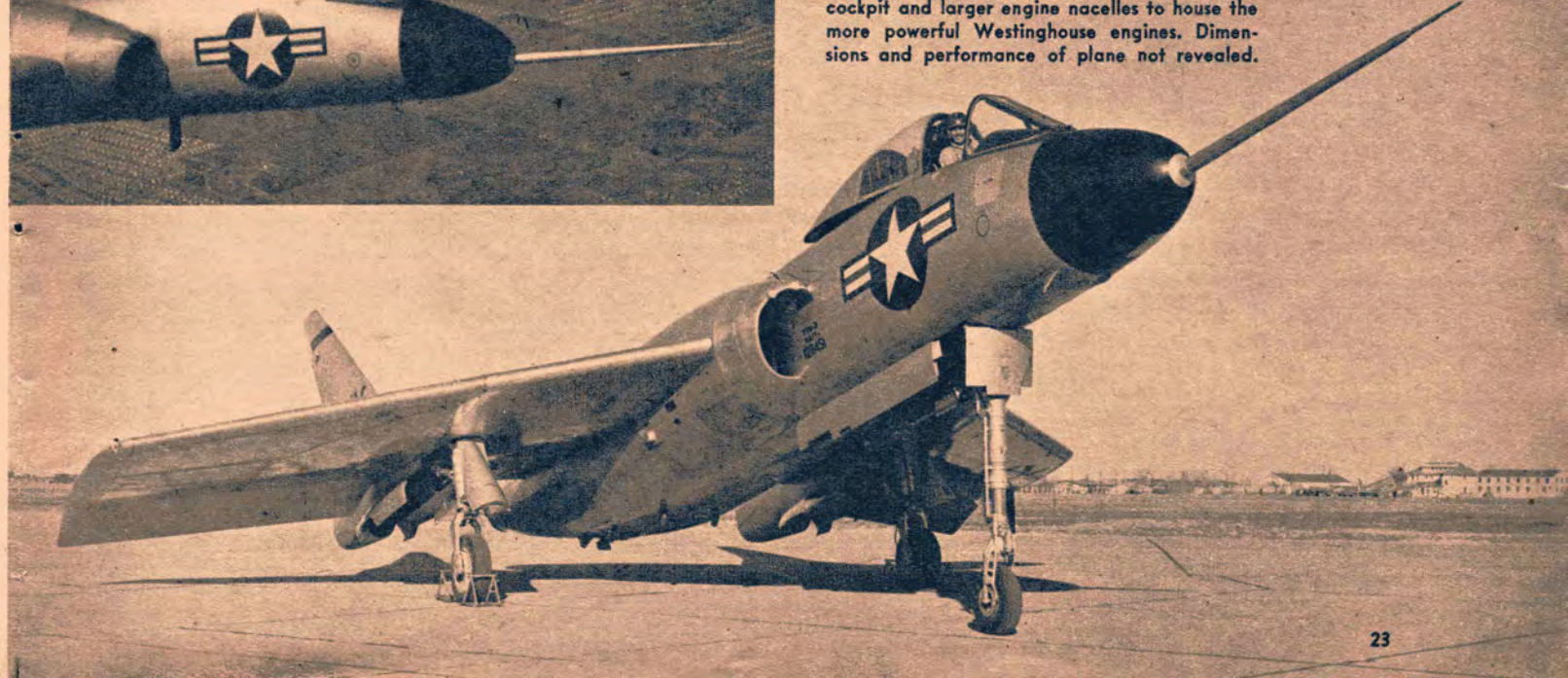
Below: Twin-engine Navion, converted from standard model by Dauby Equipment Co. of Los Angeles, Calif., for use of Plastic & Rubber Products Co. Engines are two 125 hp Lycomings. Plane cruises 155 mph. Has larger fin and rudder area than regular Navion.

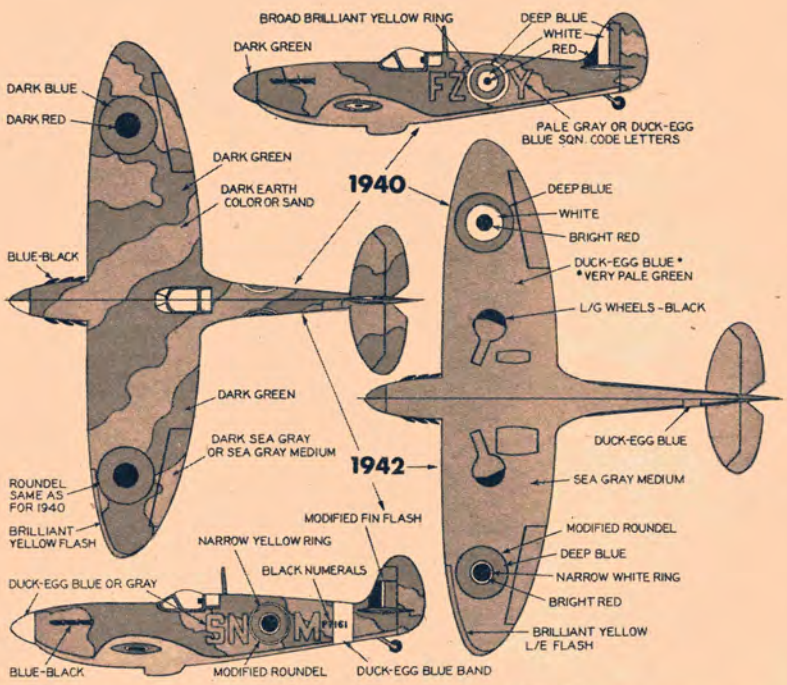
Latest product of Piper Aircraft Co. Piper-Twin Stinson, four-passenger light transport. Two Lycoming engines of 125 hp each.

Another aeronautical curiosity, Twin-Cub by H. A. Wagner of Portland, Ore., using P-11 and J-3 fuselages. Two 85 hp engines.



Chance Vought F7U-3 Cutlass, a larger and more powerful version of the F7U-1. Some of the changes are shorter nose, elimination of sub-rudders, taller and slimmer vertical tail, roomier cockpit and larger engine nacelles to house the more powerful Westinghouse engines. Dimensions and performance of plane not revealed.



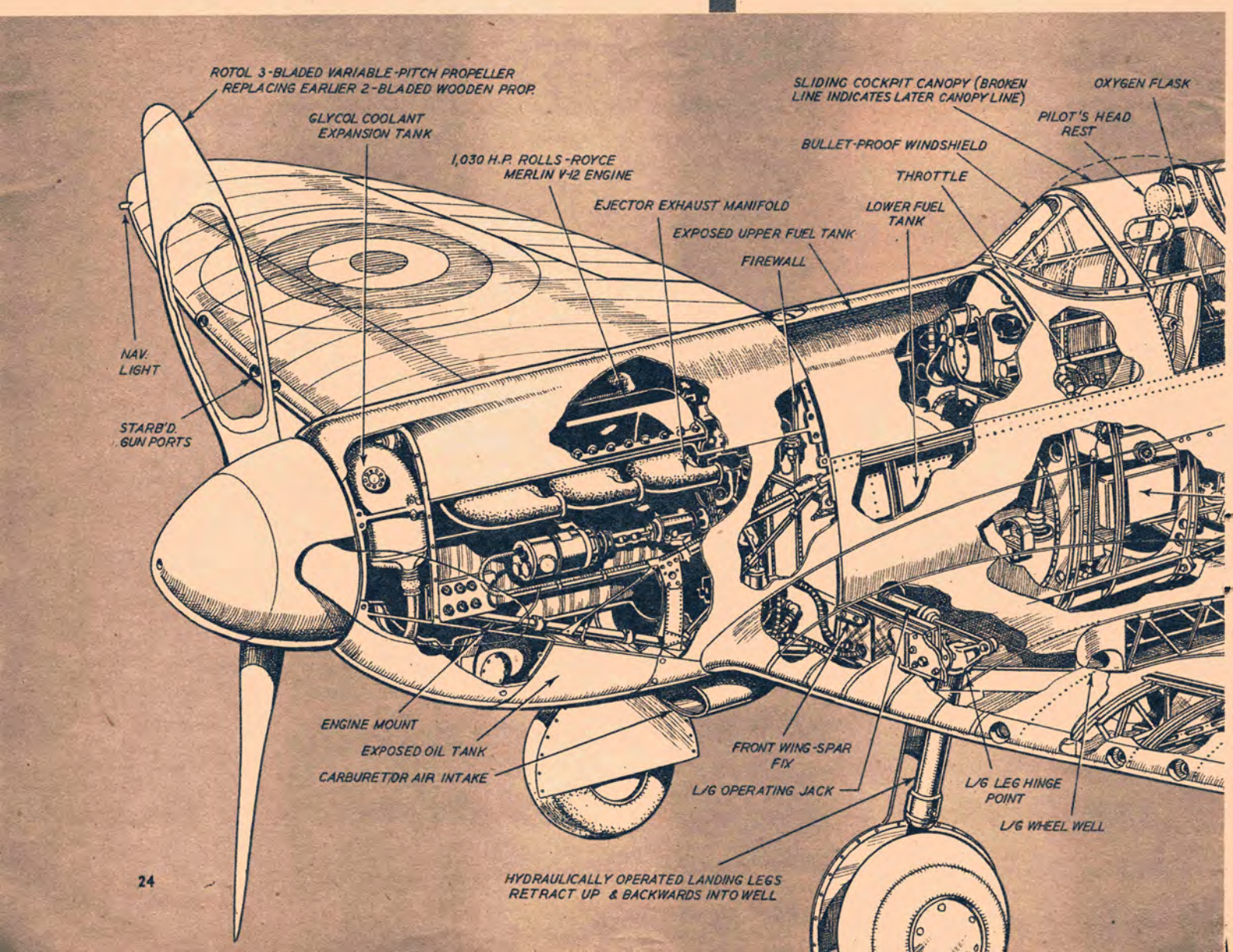


Top and bottom and profile views showing colors employed in 1940 (Battle of Britain) and in 1942. The 1940 camouflage, dark green and dark earth, was known as "Sand and Spinach." That of 1942, dark green and sea gray, was referred to as "Slime and Sewage." Main differences in markings indicated

AIR PROGRESS

Supermarine Spitfire

By DOUGLAS ROLFE

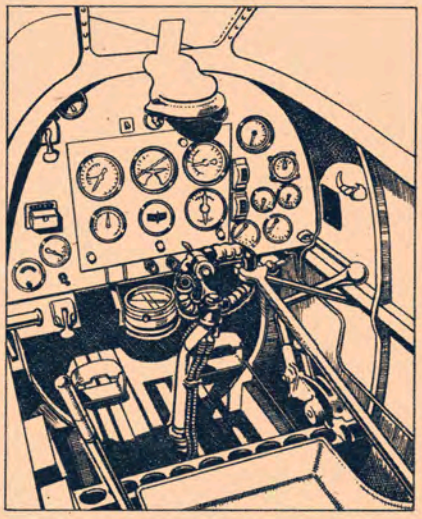


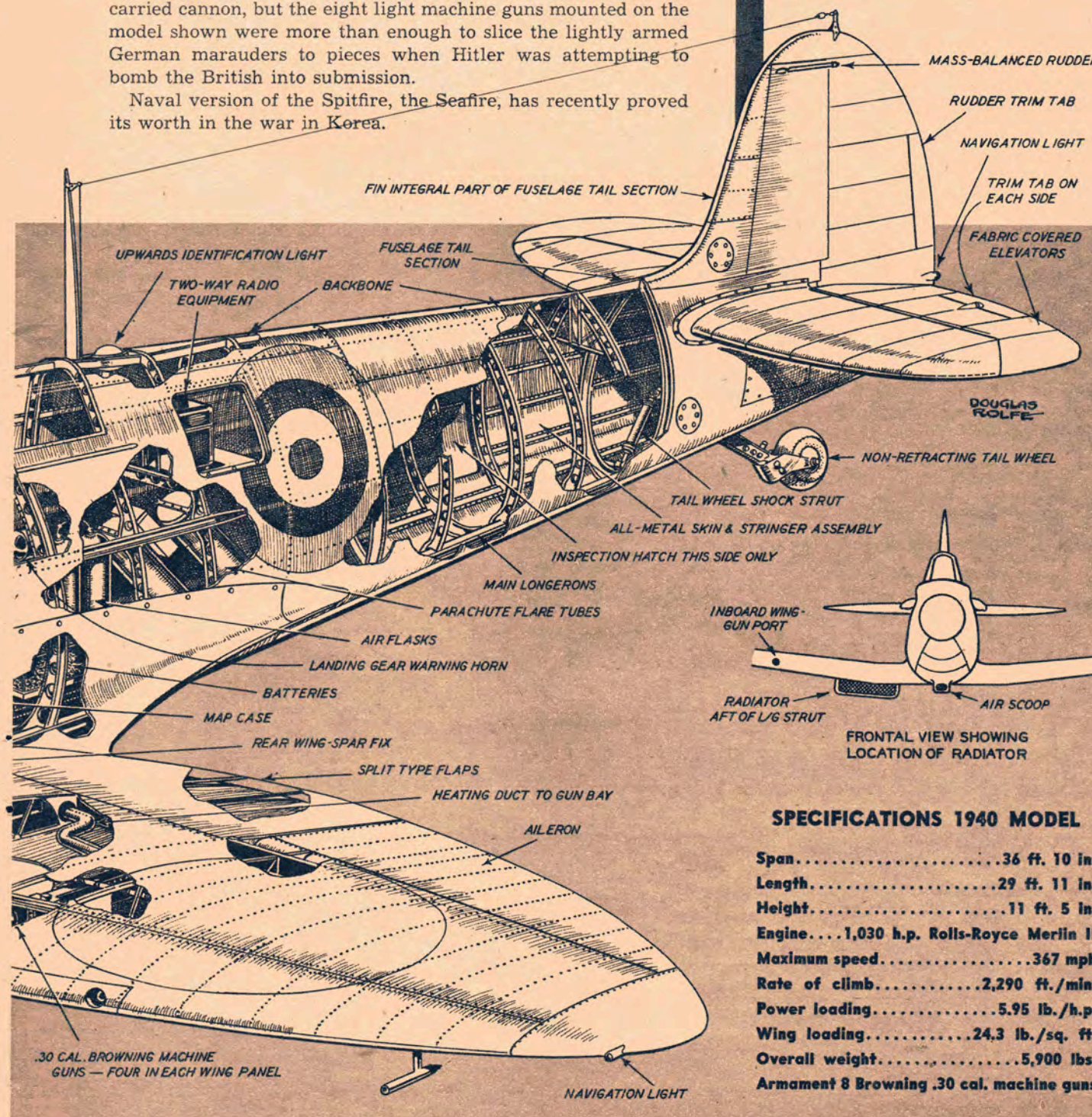
■ The fabulous Spitfire—top British fighter in the epic and decisive Battle of Britain—first appeared in 1936 but was not in production until 1939. Thereafter it remained the No. 1 British fighter throughout the Nazi war and is still, today, in modified form, one of the world's best piston-engine fighters.

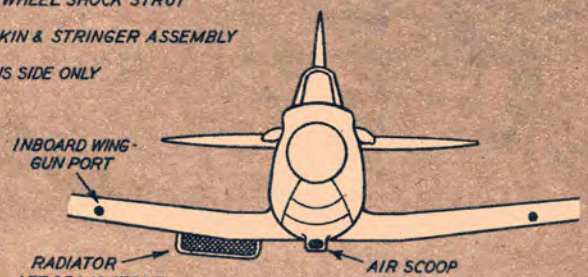
Designed by R. J. Mitchell, who was also responsible for the famous Supermarine Schneider Cup racers (first airplanes in the world to hit the 400 mile per hour mark), the "Spit" had a radical elliptically shaped wing which, while not so good from the production angle, was the focal point of the design and gave it its remarkable performance, especially in maneuverability.

The whole story of the development of the "Spit" will be told later in a further Air Progress story. Plane dissected here is the type in service during the fateful days of 1940. Later "Spits" carried cannon, but the eight light machine guns mounted on the model shown were more than enough to slice the lightly armed German marauders to pieces when Hitler was attempting to bomb the British into submission.

Naval version of the Spitfire, the Seafire, has recently proved its worth in the war in Korea.







FRONTAL VIEW SHOWING LOCATION OF RADIATOR

SPECIFICATIONS 1940 MODEL

Span.....36 ft. 10 in.
Length.....29 ft. 11 in.
Height.....11 ft. 5 in.
Engine....1,030 h.p. Rolls-Royce Merlin II
Maximum speed.....367 mph
Rate of climb.....2,290 ft./min.
Power loading.....5.95 lb./h.p.
Wing loading.....24.3 lb./sq. ft.
Overall weight.....5,900 lbs.
Armament 8 Browning .30 cal. machine guns

1
2
3
4
5
6
7
8
9
10
11
12
13
14
216

"Inside Story" of MiG-19

By JAMES L. PECK

Illustrations by DeLANCEY

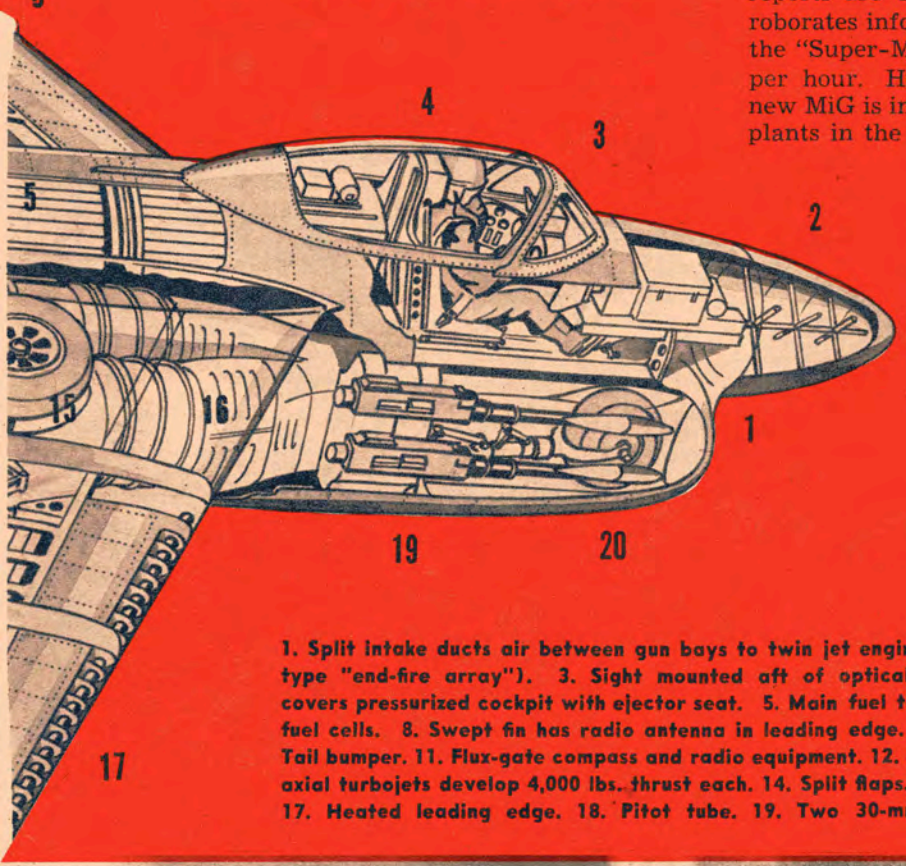
■ Revealed here for the first time is a technical reconstruction of the newest and hottest of Red Air Force fighters. This is the "Super-Mig."

This shark-faced MiG-19 is a bigger, faster, more heavily armed stable-mate of the now famous MiG-15. It is also more streamlined, more powerful, and is known to be equipped with a radar gunsight.

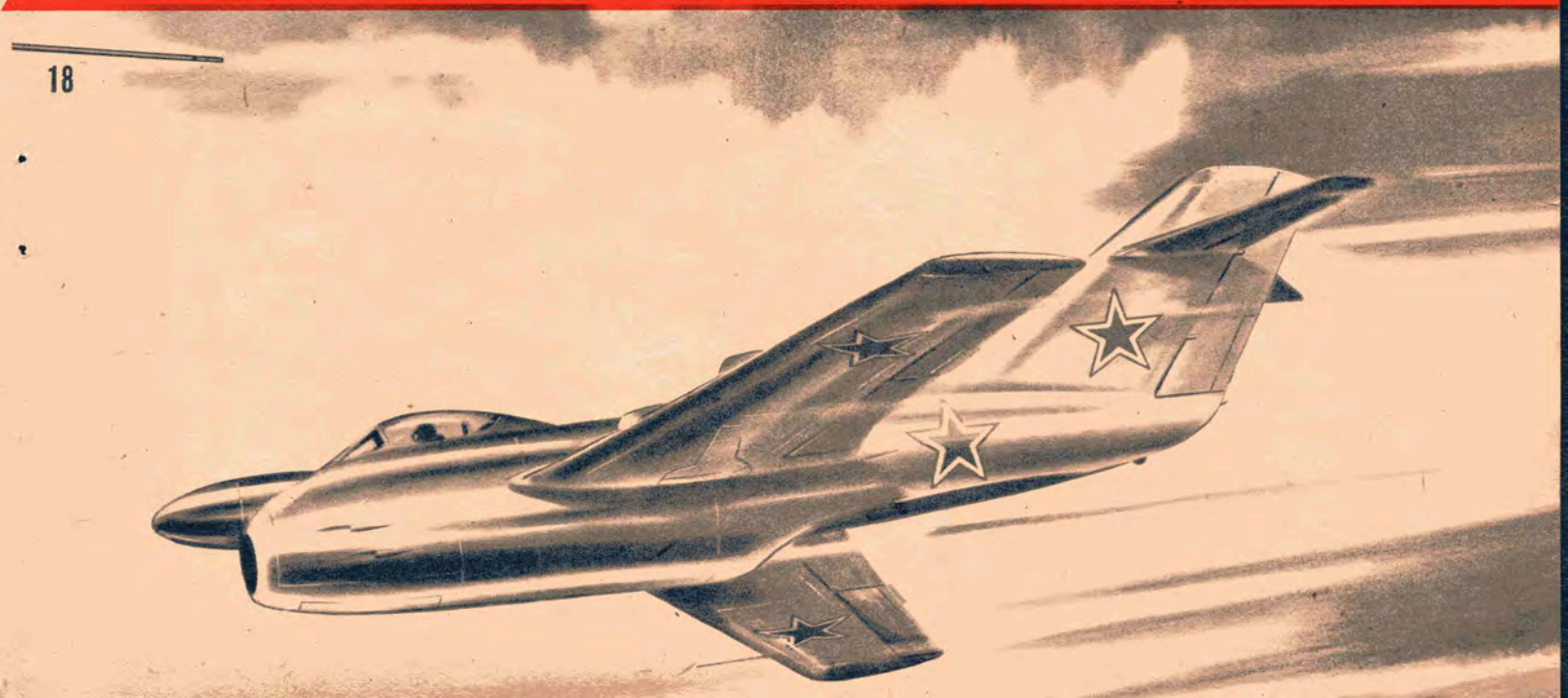
The "Super-MiG"-19 is a beautiful fighter which was first seen publicly at last Summer's Aviation Day display at Tushino Airport, and made its combat debut over Korea last October. This radar-nosed jet, is known to have appeared in "MiG Alley" several times since then in twos and fours—obviously for combat-evaluation trials. While camera gun pictures and official combat reports are Classified, word from the Sabre boys corroborates information from our sources to the effect that the "Super-MiG" is good for speeds well over 700 miles per hour. Highly reliable informants report that the new MiG is in production in limited numbers in two new plants in the Far East zone of the USSR.

Resembling superficially our McDonnell F-101 Voodoo fighter, the new Red job is powered by two axial turbojets mounted side-by-side in the bottom of the triangular-sectioned fuselage. Designed by Shvetsov, these are probably M-004H engines, developing some 4,000 pounds of static thrust.

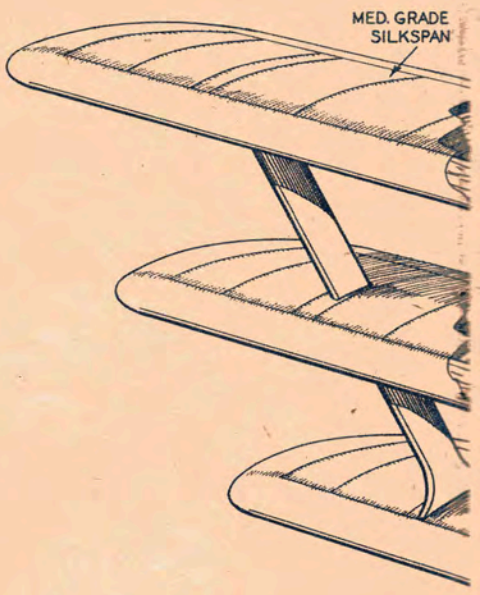
The new MiG's wing appears to be a shoulder-wing installation, but it is actually a high mid-wing with the same general planform of the MiG-15 wing with double flow fences. It spans about 33 feet 6 inches. The slimmer, (*Continued on page 72*)



1. Split intake ducts air between gun bays to twin jet engines. 2. Gunsight radar antenna (Morgenstern-type "end-fire array"). 3. Sight mounted aft of optical flat in windscreen. 4. Jettisonable canopy covers pressurized cockpit with ejector seat. 5. Main fuel tanks. 6. Flow fences. 7. Interconnected wing fuel cells. 8. Swept fin has radio antenna in leading edge. 9. Tailplane is high-set with 45° sweep. 10. Tail bumper. 11. Flux-gate compass and radio equipment. 12. Jet ejectors set in fuselage "step". 13. Shvetsov axial turbojets develop 4,000 lbs. thrust each. 14. Split flaps. 15. Retracted main gear. 16. "Pants ducts." 17. Heated leading edge. 18. Pitot tube. 19. Two 30-mm cannon on each side. 20. Nose wheel well.



BOUNCING BERTIE



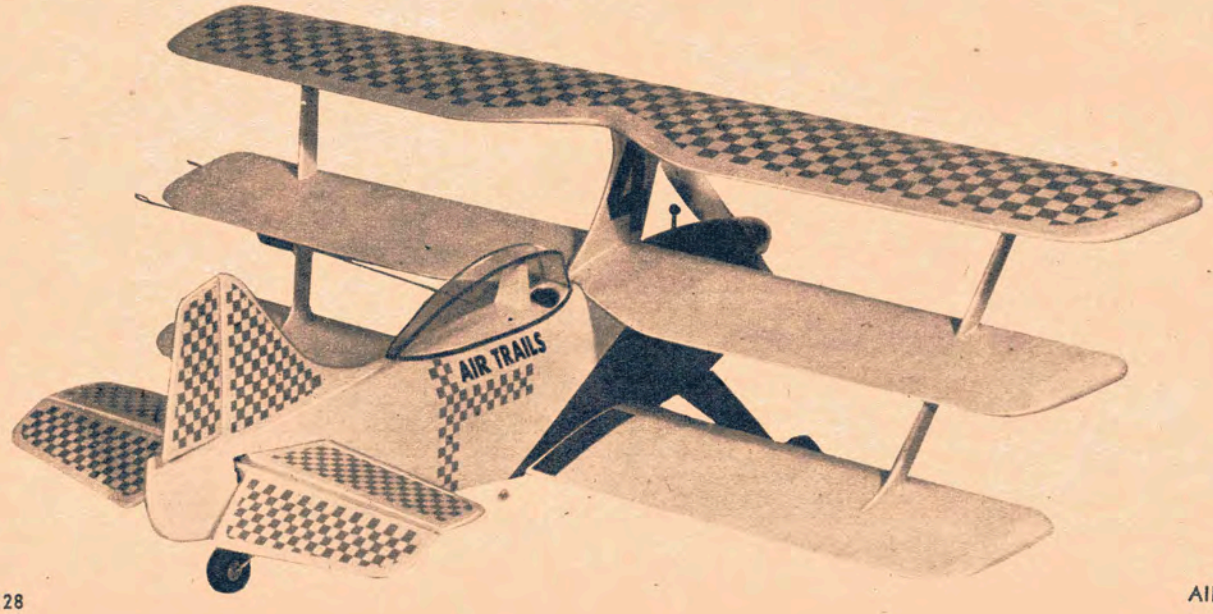
"Egad, men, take to the hills!" "Is that three monoplanes or one and a half biplanes . . .?" Such comments will greet you when you show up at the flying field with Bouncing Bertie. And for outright enjoyment you can't beat this novel .29 to .35 tripe.

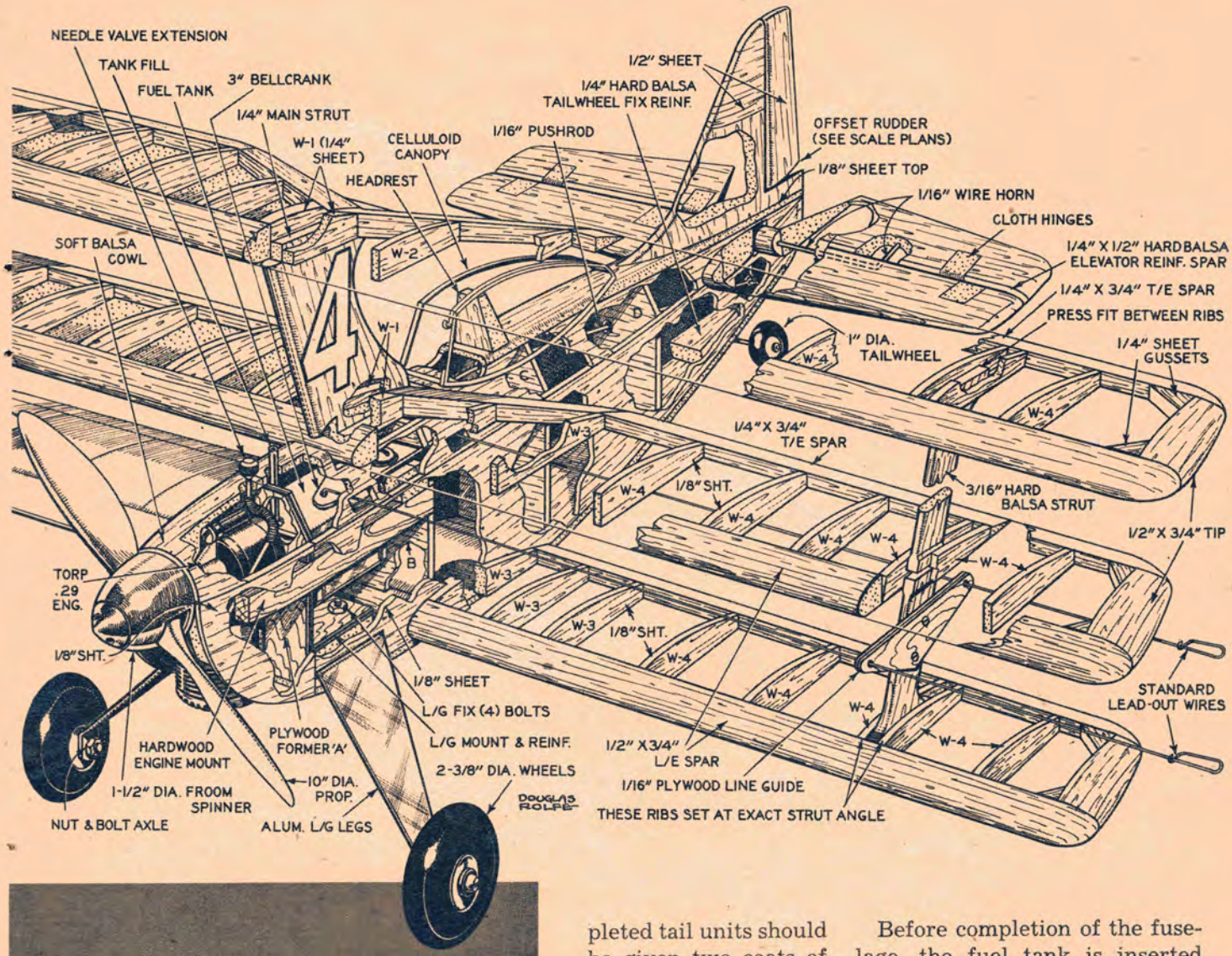
■ How many times have you said to yourself, while out at the field, "Nothing new around here, same old stuff"? Well, we designed *Bouncing Bertie* for the purpose of presenting something different, and we believe we've succeeded.

The model is designed around engines for .29 to .35 displacement. With slight structural changes engines of greater displacement may well be substituted. Construction throughout stresses strength, and therefore you have a beefy, rugged model. The two upper wings are set at one degree incidence, with the lower wing set at zero. It was noted that the incidence in both wings permitted a shorter take-off run and greater stalling angle.

Construction begins with the sheet balsa fuselage. Select two pieces of even-grained, medium-quality ⅛" x 3" sheet balsa. Cut the fuselage sides to required contour. Hardwood mounts, ⅜" x ⅝" are then added as shown. You will notice the mounts are recessed to place the engine on proper fuselage center line. Formers A, B, C, and D are next added. The firewall former A is cut from ⅛" plywood. However, before cementing former A in position, slit the forward portion of the fuselage and insert the aluminum landing gear. The gear is made from .040 24 S-T aluminum alloy sheet. Former A can then be cemented in place.

The gear reinforcement is next to be added. A square of ¼" hard sheet balsa is cemented between the fuselage, above the gear as shown. Plywood 1/16" thick is then cemented above the ¼" sheet. When completely dried, the gear is secured in place with four nuts and bolts. The 3" bell-crank is fastened to a ¼" x 1" hard balsa platform. Before setting the fuselage aside make the necessary wing cut-outs, to re-





By PAUL PALANEK

ceive the lower panel. From this cut-out back, sheet the lower portion of the fuselage. To further complete the fuselage the tail assembly is required.

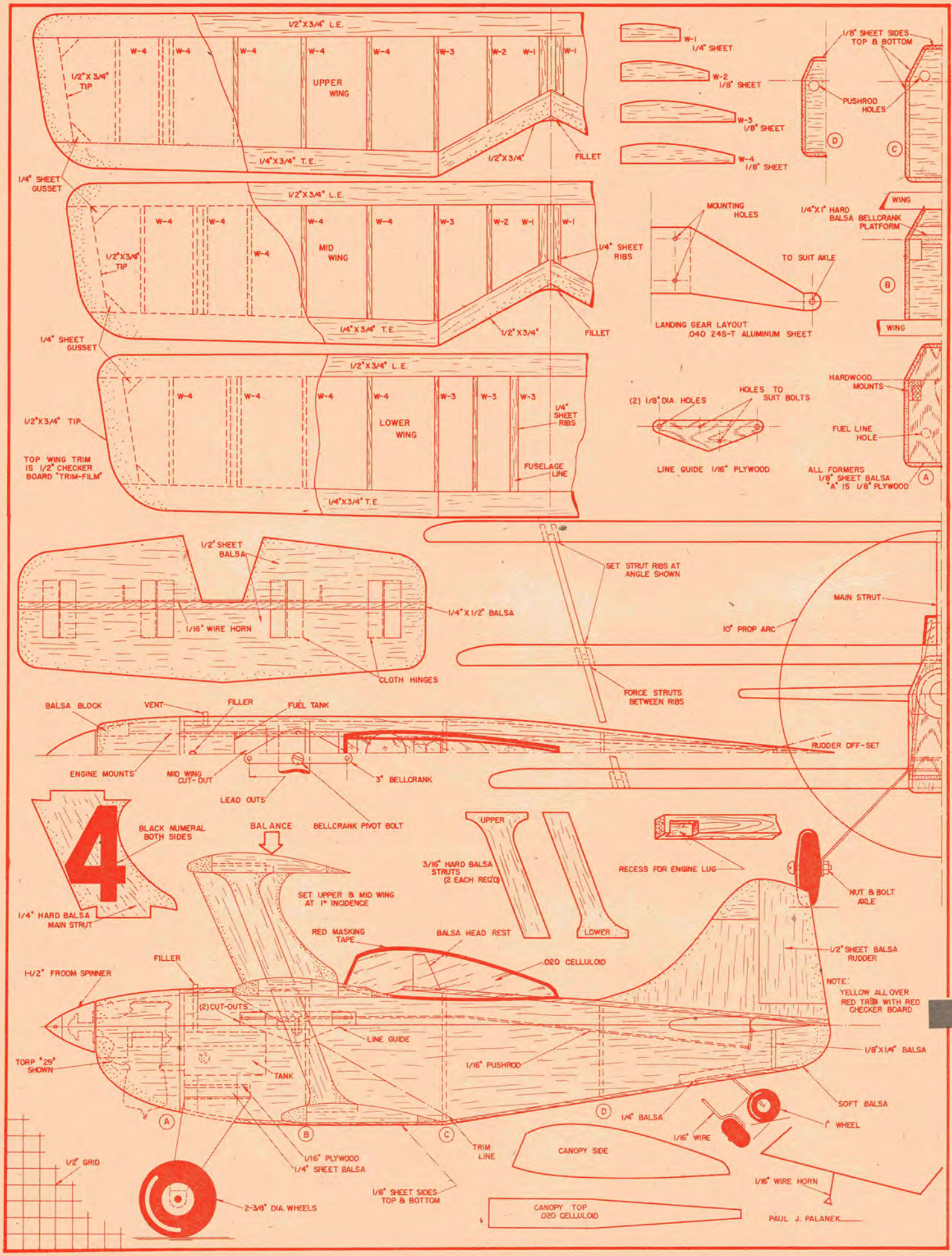
Both the rudder and the elevator assemblies are shaped from ½" soft sheet balsa. The elevator halves are held together by the horn wire, then cemented to the ¼" x ½" balsa spar. Cloth hinges fasten the elevator to the stabilizer. Both the rudder and the stabilizer taper from ½" at the root to ¼" at their tips. When properly sanded the completed tail units should be given two coats of clear dope, then lightly sanded.

Returning to the fuselage, we can securely cement the stab assembly in place. The 1/16" wire pushrod is soldered to the horn and bellcrank. The ⅛" sheet balsa turtle-deck is added as shown, first mounting the sides, then the top. When sufficiently dried, sand all corners round as shown in section views. With the fuselage still open, insert the 1/16" wire tail skid and support with ¼" sheet balsa. The rudder can be secured to the rear of the fuselage. A 1½" circular hole is cut for the cockpit clearance, and to the rear of this a balsa over-turn block is added.

Before completion of the fuselage, the fuel tank is inserted with the filler coming out the top and the vent out the right side. Sheeting the fuselage can then be completed. At this point the engine is installed and used for cowling purposes. A balsa block forms the top portion of the cowl, and ⅛" for the sides. Remove the engine, and sand the fuselage thoroughly; then apply three coats of clear dope. After each doping lightly sand, and follow through with three coats of wood filler.

When the fuselage is completely dried, cut out the required section to allow the fitting of the mid wing. The remaining work is centered around the wing structures.

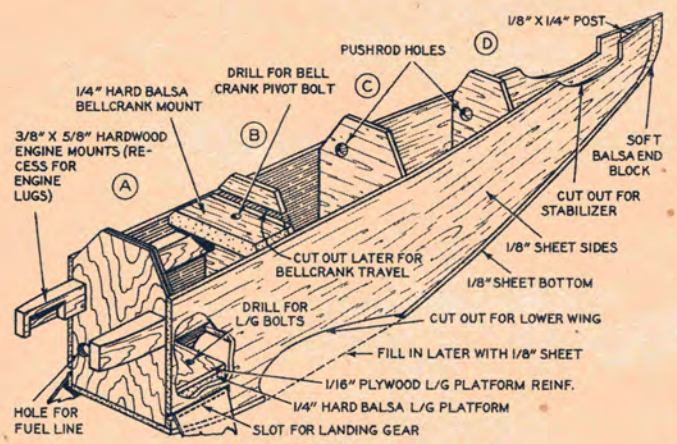
Wing assemblies are somewhat similar, the only difference


1/2"X3/4" L.E.
W-4
W-3
W-2
W-1
UPPER WING
1/2"X3/4" TIP
1/4"X3/4" T.E.
1/2"X3/4"
FILLET
1/4" SHEET GUSSET
MID WING
1/4" SHEET RIBS
LOWER WING
TOP WING TRIM IS 1/2" CHECKER BOARD "TRIM-FILM"
W-1 1/4" SHEET
W-2 1/8" SHEET
W-3 1/8" SHEET
W-4 1/8" SHEET
1/8" SHEET SIDES TOP & BOTTOM
PUSHROD HOLES
MOUNTING HOLES
TO SUIT AXLE
LANDING GEAR LAYOUT .040 24S-T ALUMINUM SHEET
1/4"X1" HARD BALSA BELLCRANK PLATFORM
WING
(2) 1/8" DIA. HOLES
HOLES TO SUIT BOLTS
LINE GUIDE 1/16" PLYWOOD
HARDWOOD MOUNTS
FUEL LINE HOLE
ALL FORMERS 1/8" SHEET BALSA "A" IS 1/8" PLYWOOD
1/2" SHEET BALSA
1/16" WIRE HORN
1/4"X1/2" BALSA
CLOTH HINGES
SET STRUT RIBS AT ANGLE SHOWN
MAIN STRUT
10" PROP ARC
FORCE STRUTS BETWEEN RIBS
BALSA BLOCK
VENT
FILLER
FUEL TANK
ENGINE MOUNTS
MID WING CUT-OUT
LEAD OUTS
3" BELLCRANK
RUDDER OFF-SET
4
BLACK NUMERAL BOTH SIDES
BALANCE
BELLCRANK PIVOT BOLT
1/4" HARD BALSA MAIN STRUT
SET UPPER & MID WING AT 1° INCIDENCE
UPPER
3/16" HARD BALSA STRUTS (2 EACH REQ'D)
LOWER
RECESS FOR ENGINE LUG
NUT & BOLT AXLE
RED MASKING TAPE
BALSA HEAD REST
.020 CELLULOID
1/2" SHEET BALSA RUDDER
NOTE: YELLOW ALL OVER RED TRIM WITH RED CHECKER BOARD
1-1/2" FROOM SPINNER
FILLER
(2) CUT-OUTS
LINE GUIDE
TORP "29" SHOWN
TANK
1/16" PUSHROD
1/8"X1/4" BALSA
SOFT BALSA
1/4" BALSA
1" WHEEL
1/16" WIRE
TRIM LINE
CANOPY SIDE
1/2" GRID
1/16" PLYWOOD
1/4" SHEET BALSA
1/8" SHEET SIDES TOP & BOTTOM
2-3/8" DIA. WHEELS
CANOPY TOP .020 CELLULOID
1/16" WIRE HORN
PAUL J. PALANEK

being in the span and the various rib positions. With the proper use of materials a sturdy wing structure will result. All the ribs are cut and sanded, ⅛" and ¼" sheet balsa being used. Because there is no dihedral, there is no break in the balsa leading edge. The trailing edge is ¼" x ¾" and the leading edge ½" x ¾". Start construction with the lower panel and work up. When fastening the strut ribs in place, allow a sufficient amount to take care of trimming.

When the wings are completely dried, sand the strut ribs to required contour. Carve and sand the balance of the wing to correct airfoil shape. The three wings are then covered with medium grade paper wetted and allowed to dry. Three coats of clear dope are applied to each wing. Before any further assembly work is done, the model is color-doped. Once assembled, colored doping would be difficult. Two coats of orange yellow are applied to all areas. Mask the fuselage and trim with "insignia" red.

Cement both the lower and mid-wings in place on the fuselage. A ⅛" sheet is cemented to the lower wing and faired to the fuselage lines. While this assembly is drying, the main and wing struts can be made. The main strut is shaped from ¼" hard sheet balsa. Sand all corners allowing for a snug fit in the wings. The wing struts, of which two each are required, are cut from 3/16" hard sheet balsa. When the struts are completed, finish off by applying both clear dope and wood filler.


1/8" X 1/4" POST
PUSHROD HOLES
D
DRILL FOR BELL CRANK PIVOT BOLT
C
1/4" HARD BALSA BELLCRANK MOUNT
3/8" X 5/8" HARDWOOD ENGINE MOUNTS (RECESS FOR ENGINE LUGS)
B
A
SOFT BALSA END BLOCK
CUT OUT FOR STABILIZER
1/8" SHEET SIDES
CUT OUT LATER FOR BELLCRANK TRAVEL
1/8" SHEET BOTTOM
DRILL FOR L/G BOLTS
CUT OUT FOR LOWER WING
FILL IN LATER WITH 1/8" SHEET
1/16" PLYWOOD L/G PLATFORM REINF.
1/4" HARD BALSA L/G PLATFORM
HOLE FOR FUEL LINE
SLOT FOR LANDING GEAR

The main strut is cemented into the upper wing. When dried, cement the wing and strut to the mid-wing. Block up this assembly and allow to dry in proper position. The wing struts are fastened in place by forcing the wings apart and slipping them in position. Be liberal with cement on all strut joints. Apply two coats of yellow dope.

To cut cost, the canopy shown was substituted for a standard bubble. The enclosure is square in section and assembled off the fuselage. When dried, cement the canopy to the fuselage and mask all seams with red masking tape.

The checkerboard Trim-Film is next added, ½" for the upper and mid-wing and ¼" for the tail surfaces. A black #4 is placed on the wing strut. The Air Trails lettering placed on the fuselage is cut from black Trim-Film, ½" high. With the trim completed, all areas are given a coat of fuel proofer, two coats applied to the engine compartment.

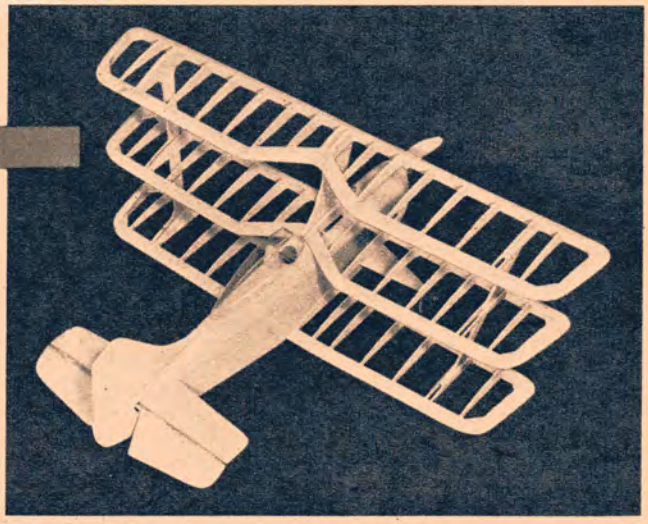
In flying our *Bouncing Bertie*, 75 feet of braided cable lines were used. Allow plenty of right rudder and reduce as required. Only partial power should be exercised when testing.

Bill of Materials

(*Balsa unless otherwise specified*)

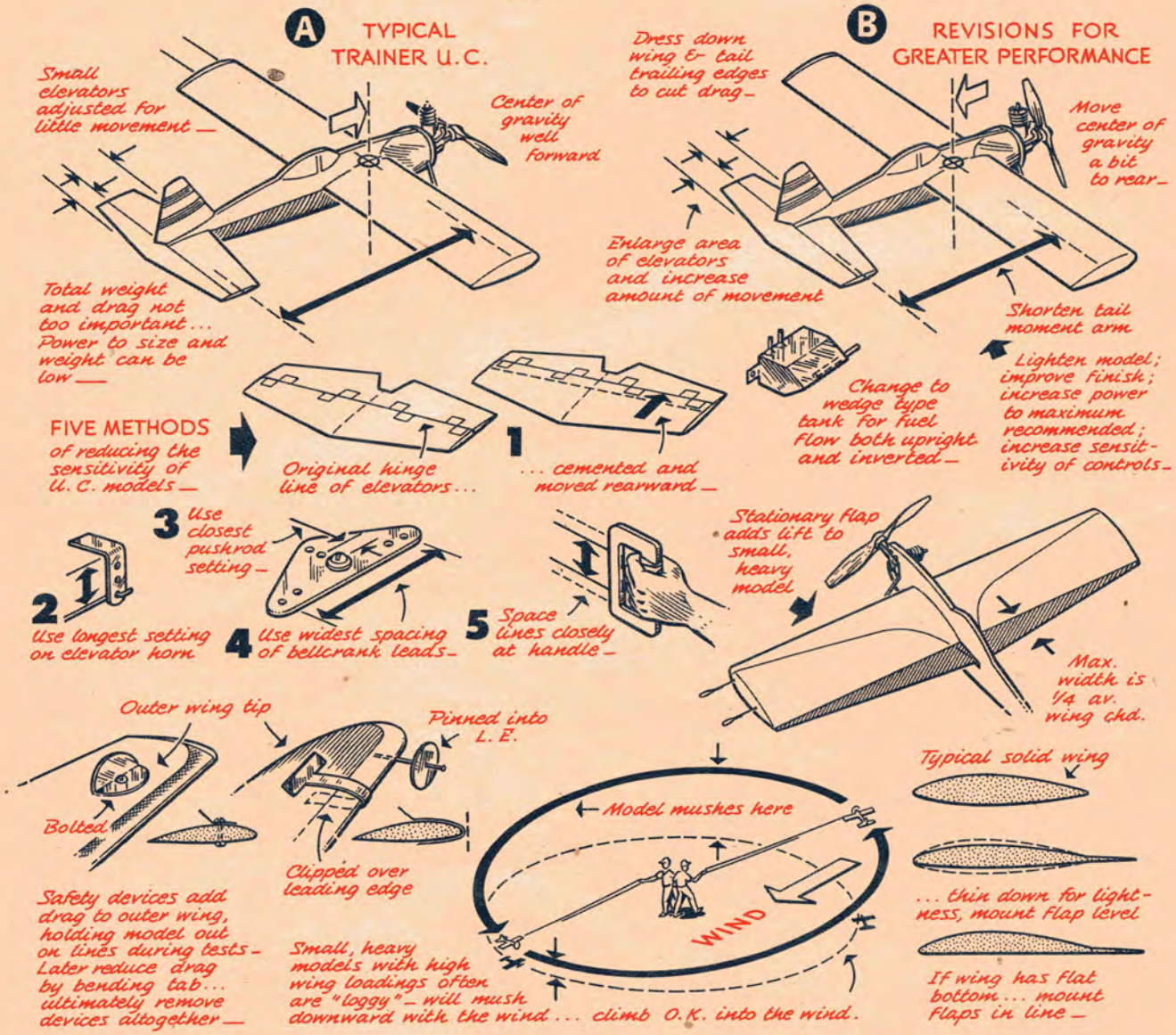
1 pc. ½" x ¾" x 36" (soft), tail surfaces. 3 pcs. ½" x ¾" x 36" (med.), wing leading edge. 3 pcs. ¼" x ¾" x 36" (med.), wing trailing edge, 1 pc. ½" x ¾" x 36" (med.), wing tips, wing center section. 1 pc. ¼" x ½" x 18" (med.), elevator spar. 1 pc. ¼" x 3" x 36" (hard), main strut, gussets, landing gear reinforcement. 1 pc. 3/16" x 3" x 18" (hard), wing struts. 3 pcs. ⅛" x 3" x 36" (med.), fuselage. 3 pcs. ⅛" x 2" x 36" (med.), wing ribs. 1 pc. ¼" x 2" x 18" (med.), center section wing ribs, tail wheel support. 1 pc. ⅜" x ⅝" x 12" (hardwood), engine mounts. 1 pc. 2" x 2" x 4" (soft), cowl top.

Cement; clear and colored dopes; ⅛" plywood; 1/16" plywood; .040 aluminum; 1/16" dia. wire; 1/32" dia. wire; cloth hinges; 3" bellcrank; Trim-Film; fuel proofer; plastic tubing; fuel tank; wheels; .020" celluloid; masking tape; nuts and bolts; med. paper; engine; 10" prop; spinner.



AIR-MODEL MANUAL

kit tips for the novice

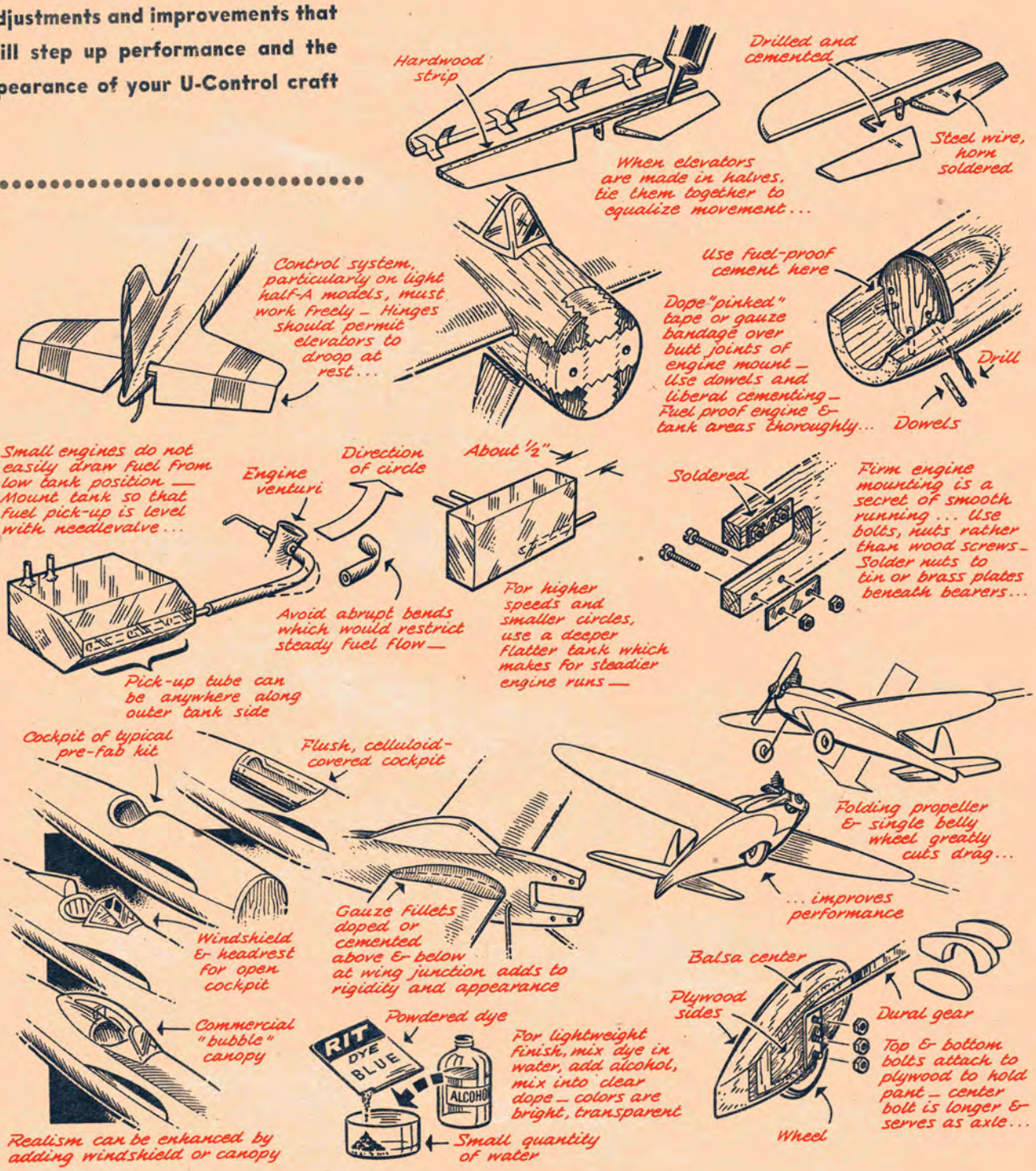

A TYPICAL TRAINER U.C.
Small elevators adjusted for little movement —
Center of gravity well forward
Total weight and drag not too important... Power to size and weight can be low —
B REVISIONS FOR GREATER PERFORMANCE
Dress down wing & tail trailing edges to cut drag —
Move center of gravity a bit to rear —
Enlarge area of elevators and increase amount of movement
Shorten tail moment arm
Lighten model; improve finish; increase power to maximum recommended; increase sensitivity of controls —
Change to wedge type tank for fuel flow both upright and inverted —
FIVE METHODS of reducing the sensitivity of U. C. models —
Original hinge line of elevators...
1 ... cemented and moved rearward —
2 Use longest setting on elevator horn
3 Use closest pushrod setting —
4 Use widest spacing of bellcrank leads —
5 Space lines closely at handle —
Stationary flap adds lift to small, heavy model
Max. width is 1/4 av. wing chd.
Outer wing tip
Pinned into L. E.
Bolted
Clipped over leading edge
Safety devices add drag to outer wing, holding model out on lines during tests — Later reduce drag by bending tab... ultimately remove devices altogether —
Model mushes here
WIND
Small, heavy models with high wing loadings often are "loggy" — will mush downward with the wind ... climb O.K. into the wind.
Typical solid wing
... thin down for lightness, mount flap level
If wing has flat bottom ... mount flaps in line —

■ Present-day prefabricated kits have eliminated construction problems; the simpler control-line trainer models can be assembled by any average youngster. But best performance depends on basic knowledge of balancing, adjusting and the control system.

Half-A models are flown on 30-50 ft. lines, either lightest weight steel or cord. Since controls work best on heavy models where stronger forces make even poor hinges and tight linkages work well enough, it is *imperative* on light models that the controls work freely though without looseness or play. Friction or tightness can cause erratic and difficult handling, particularly for the novice. Pushrod can be bent to clear obstructions between bellcrank and elevator horn; should be stiff enough to resist bowing under normal compression. Elevators should hang limply, held in down position at rest by their own weight. Too much paint on fabric hinges makes them stiff and brittle.

First flights should be made with control system adjusted for least sensitivity so that some overcontrolling can be tolerated. Balance is important; with center of gravity forward, near wing's leading edge, model is easy to fly but has somewhat limited maneuverability. As center of gravity is moved rearward, toward center of wing chord, model responds more violently to control movement. Stunt models employ this for maximum maneuverability while other control types such as speed and team racers have a more forward balance point for safety and smoother, easier flying.

Some common sense suggestions for adjustments and improvements that will step up performance and the apearance of your U-Control craft


Hardwood strip
Drilled and cemented
Steel wire, horn soldered
When elevators are made in halves, tie them together to equalize movement...
Control system, particularly on light half-A models, must work freely – Hinges should permit elevators to droop at rest...
Use fuel-proof cement here
Dope "pinked" tape or gauze bandage over butt joints of engine mount – Use dowels and liberal cementing – Fuel proof engine & tank areas thoroughly...
Drill
Dowels
Small engines do not easily draw fuel from low tank position — Mount tank so that fuel pick-up is level with needlevalve...
Engine venturi
Direction of circle
About ½"
Avoid abrupt bends which would restrict steady fuel flow—
For higher speeds and smaller circles, use a deeper flatter tank which makes for steadier engine runs—
Pick-up tube can be anywhere along outer tank side
Soldered
Firm engine mounting is a secret of smooth running ... Use bolts, nuts rather than wood screws – Solder nuts to tin or brass plates beneath bearers...
Cockpit of typical pre-fab kit
Flush, celluloid-covered cockpit
Windshield & headrest for open cockpit
Commercial "bubble" canopy
Realism can be enhanced by adding windshield or canopy
Gauze fillets doped or cemented above & below at wing junction adds to rigidity and appearance
Folding propeller & single belly wheel greatly cuts drag...
... improves performance
Balsa center
Plywood sides
Dural gear
Top & bottom bolts attach to plywood to hold pant – center bolt is longer & serves as axle...
Wheel
Powdered dye
RIT DYE BLUE
ALCOHOL
For lightweight finish, mix dye in water, add alcohol, mix into clear dope – colors are bright, transparent
Small quantity of water

Assumption that anything will fly on a string depends on what is held to constitute flying. Poorest model, of crude balsa slabs, with inefficient airfoil sections, faulty alignment and rough finish will likelv limp through the air at best, giving little satisfaction to its pilot. Conversely, same general type of model, built lightly, smoothly finished, with neat installation of engine and control system reflects careful workmanship in its snappier performance and easier handling.

No heavily loaded model can be expected to fly as well as a lighter one. But when weight is too little, model tends to handle limply, has little inertia to smooth out flight path. The desire to pile on thick enamel coats for glossy finish ruins many small models as flyers; enamel is not recommended for Half-A's. Sometimes additional wing area (see flaps above) reduces wing loading and improves handling. Weight put into model in form of solid engine bearers, sound basic structure for gear, tank and control system is worthwhile. Flying surfaces should be kept smooth, light, carefully aligned. A secret of enjoyable flying is a smooth running engine which in turn requires firm mounting, balanced propeller of correct size and pitch, solid tank mounting to avoid fuel frothing and bubbling. Besides crack-ups, hazard to long life of model is its built-in resistance to penetration and weakening by glow-fuel. Care in adequate fuel-proofing, use of fuel-proof cement around nose of model pays off in long run.

MODEL BUILDING LEADS TO MANY INTERESTING CAREERS

Typical of the many jobs in automotive field open to skilled model builders, this scale expert works on early car model made of wood and metal for a permanent General Motors display. Most auto firms make 3/8th scale clay models of all new designs; some, full-size clay replicas that cost $50,000.

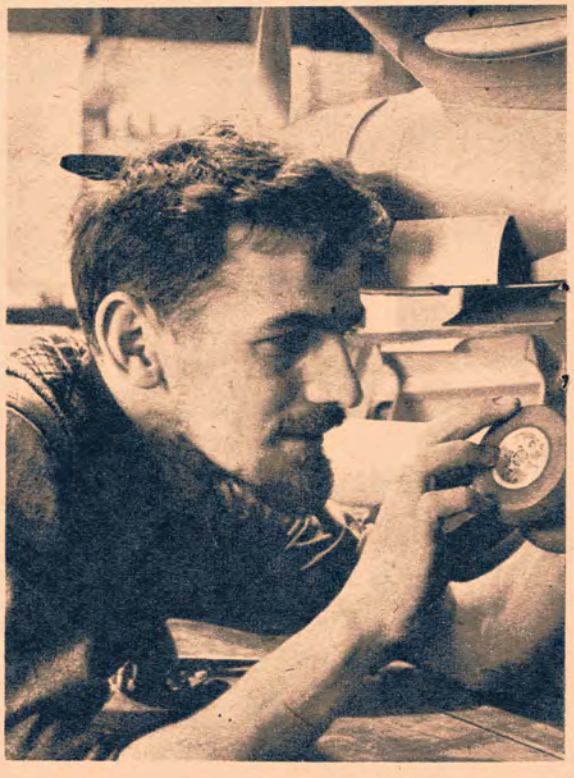
At the Kaiser plant in Willow Run, Mich., planners utilize accurate scale models to set up complete

They Model for Money

■ Of the many exacting tests that "working" aeromodelers meet, none is more precise than the experiments of the National Advisory Committee for Aeronautics. NACA's three labs long have been employing young airplane model builders. Many have risen to important supervisory positions. Among those who made good was John P. Morgan, one of three members of a model club in Clarksburg, W. Va. They had a friend at Langley who kept urging them to come. They did. Now Mr. Morgan is head of the Dynamic Model Shop.

Another of the three, Harold I. Maxwell, became head of a mechanical engineering section. Caldwell C. Johnson, Jr., a group leader in the same section, still is a modelplane hobbyist and has won many important meets.

Says T. Melvin Butler, Personnel Director of Langley Laboratory: "Model airplane builders make excellent employees, especially in shop jobs requiring careful, precise workmanship. In the first place, a youth who builds and flies model airplanes has already demonstrated his interest in aeronautics. He will take an interest in his job with NACA. He has already acquired some manual skill and he's usually a bright fellow who can profit from training . . ."

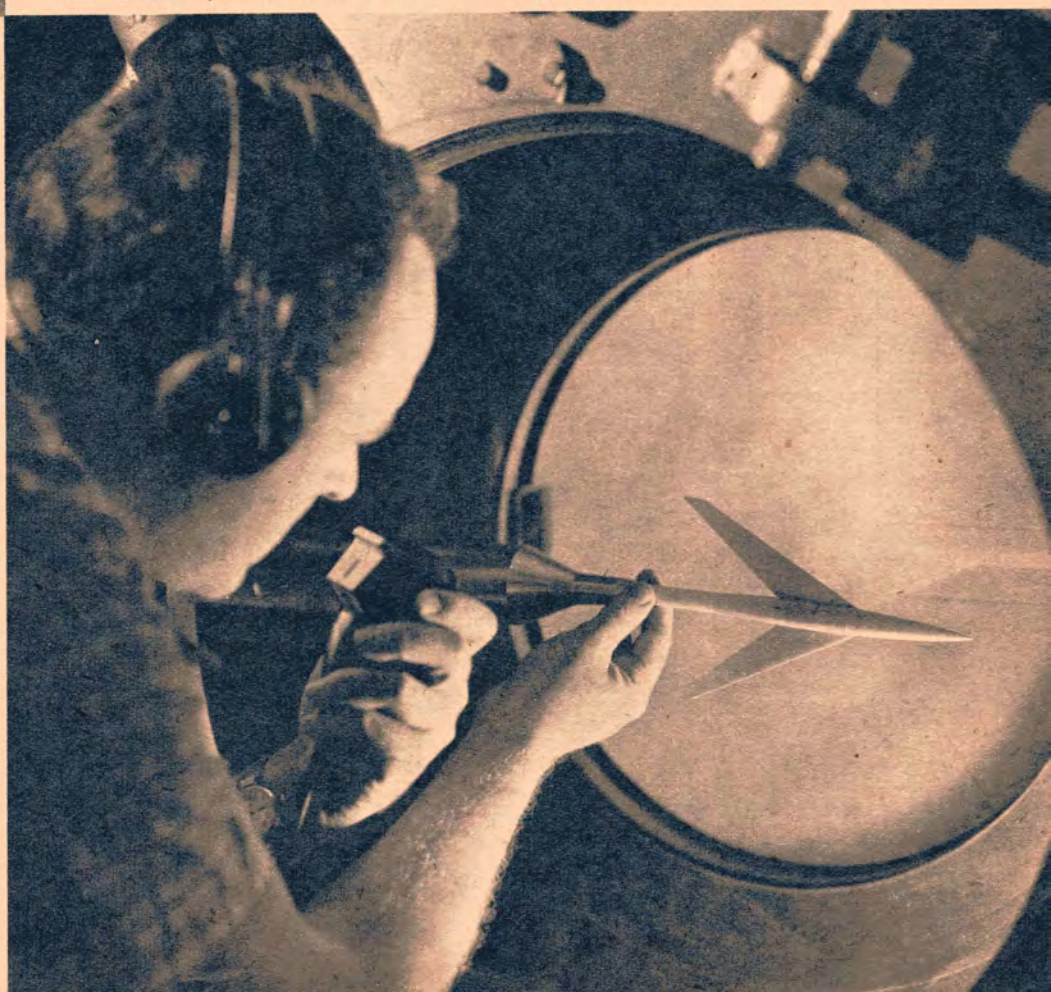


Airspeed Ambassador model used for seating layout. British concerns rate modeling highly. Gloster Aircraft calls modeler "an extremely skilled craftsman."

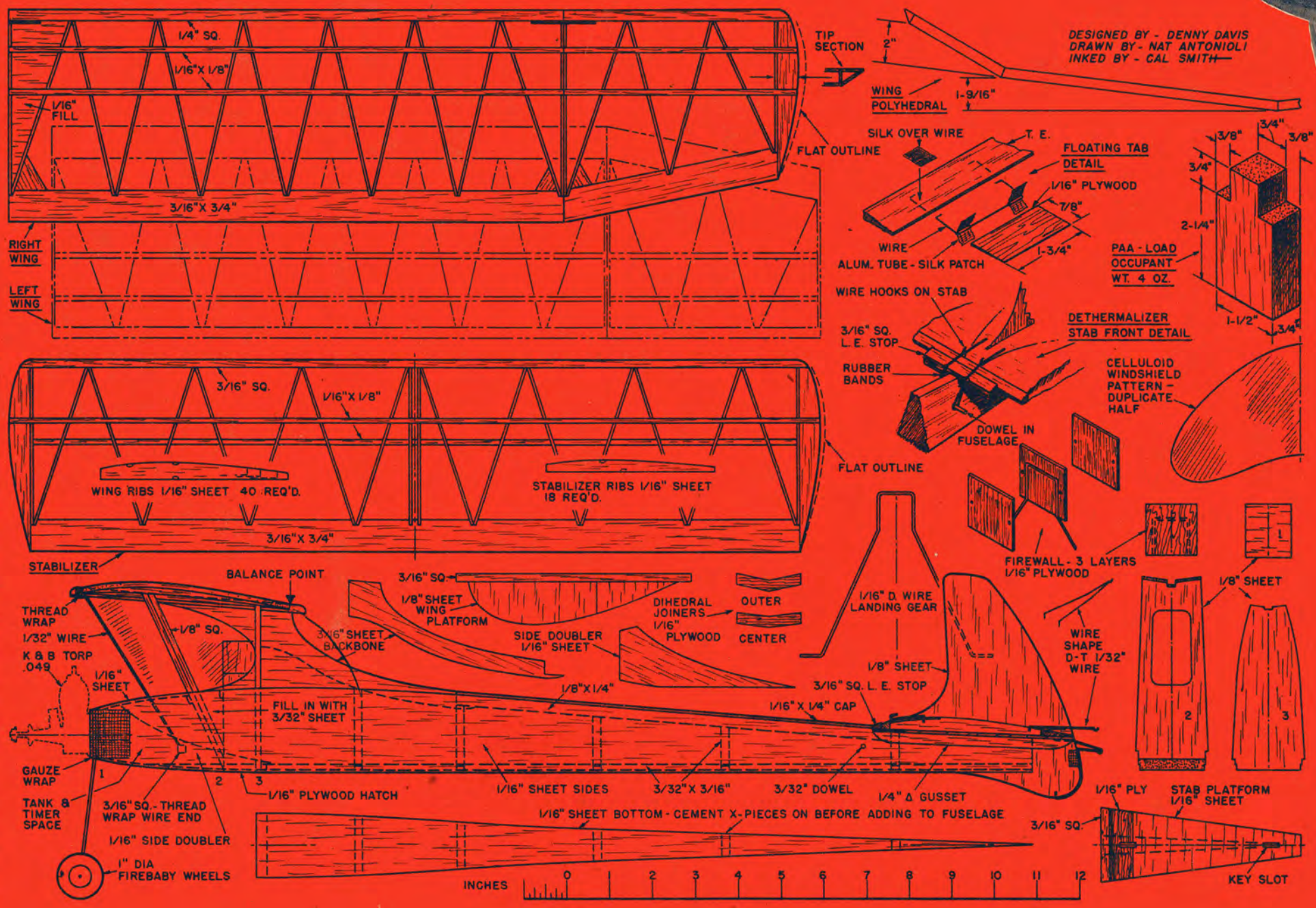
miniature production lines for C-119 Packet.

NACA Ames Aeronautical Laboratory worker installs tiny swept-back wing on jet fighter for hi-speed flight research. Instruments beneath models will be buried in wing.

Model with swept-back wings and cylindrical body in test section of NACA supersonic wind tunnel. Tiny orifices on model connect to multiple-tube manometers outside tunnel.



Dennie Davis' newest is neat little combo free flight which qualifies as PAA-Load or endurance job



Mini-Paagan

Half-A cutie for payload is latest in winning series

By DENNIS DAVIS

■ One of the finest things that has happened the past few years in model aviation has been the Pan-American World Airways sponsored events at the Nationals and the various regional events all over the country. New ideas, better understanding of model aerodynamics and more fun and enjoyment have resulted because of Pan-American interest in our hobby-sport.

The Mini-Paagan presented here is a wonderful combination job—with "Li'l Paagan" (the dummy) in the bucket, it's a PAA-Load job—without the dummy it is a fine Half-A competition flyer, no sweat, same airplane. Throw a careful bunch of thin coats of dope on, a nice windshield job, and some black tissue trim, and it's a beauty event contender that flies birdlike! Nothing clumsy or boxy about this little gem.

With the pop-up tail dethermalizer back there, you can fly its PAAnts off without worrying about losing it—just make sure the fuse is good! And you'll enjoy the new type wing and stabilizer construction and the simple quick-together fuselage—this is about as warp-proof as light construction can get and plenty rugged.

Sold? Fine, let's go so we can fly it Sunday. Start with the wing and stabilizer.

This zigzag rib construction has several advantages over the usual surface construction, the outstanding one being that it is much more warp-resistant. The theory is that the ribs are braced to directly offset the warping tendency that shrunken covered surfaces inevitably have. Since the ribs must be there to form the contour of the section, they may as well be used to better advantage in strengthening the structure. Modern, light structures must utilize every ounce of material.

The wing and stabilizer are built directly over full-size plans in the usual manner. The best method of reproducing ribs is by using a master template and razor blade directly on 1/16" sheet balsa. This technique is easy and doesn't require special saws, blades, etc. A little practice and a new razor blade guarantee good reproduction. Cut out 40 wing and 18 stabilizer ribs. It is best to pin them all together for sanding—the template is oversize to allow sanding to the finished contour shown on the plans. Notches for the bottom spar are cut as the ribs are cemented in place. (Top spars and notches are put in after the wing is built and dihedral installed.) The tip ribs are cut to the correct length, then sliced off the bottom for taper. The ribs at the dihedral break are put in after the dihedral is installed.

Leading edges and trailing edges are contoured, and structure is generally sanded before the dihedral is put in. Use a large sand block—I find emery cloth lasts longer (*Continued on page 52*)

"AT" FORUM

Got a question or comment? Here's the spot to air your opinions, gripes, suggestions. Questions will be answered by Air Trails' Experts Advisory Board

Difference between C.G. and C. L. A. . . . I wish you would tell me the difference between the center of gravity and center of lateral area.

Gene Martha, Attleboro, Mass.

• The center of gravity (C.G.) of an airplane is the point at which the mass or weight is centered (see sketch). Think of it as the point where the model will balance level when viewed from the side. The C.G. will ordinarily lie somewhere between the leading and trailing edge of the wing depending upon the type of model, free flight or control line. Free-flight models with non-lifting tails usually have C.G. about one-third of wing chord back from leading edge. Free flight models with lifting tails have C.G. lying anywhere from midpoint of wing back to trailing edge. Control-line models have C.G. located anywhere from leading edge back to about one-quarter chord point.

The center of lateral area (C.L.A.) is the point of the side or profile area of an airplane. This point can be determined by mathematical formula, but it is a very complicated process. Here is a simple trick used by model builders to determine C.L.A. position. The side view outline is drawn on a piece of stiff cardboard and cut out. This silhouette is pierced repeatedly by a pin and suspended until it hangs level. This is a trial and error process. The point should be located close to a fore and aft line passing through the C.G., and behind the C.G., by about one-third distance to the horizontal tail.

Proper location of the C.L.A. as indicated above is necessary for good spiral stability of free-flight models.

Color of Stits Jr. . . . Would you please tell me what color the Stits Jr. is?

James Flynt, Savannah, Ga.

• The colors for the Stits Jr. are dark blue and white.

Escopette Pulse Jet . . . We are very interested in a picture that you ran. It's a French jet glider powered by four Escopette pulse jet engines each developing 22 lbs. thrust.

Can you give us more information about these small jet engines? We would particularly desire to correspond with the people who have the detailed design features of these engines, Can you arrange this?

John R. Boyd, Mar Vista, Calif.

• We know very little regarding the Escopette pulse jet engine. It was designed and developed by Raymond Marchal, Technical Director of S.N.E.C.M.A. (Société Nationale d'Etude et de Construction de Moteur d'Aviation), 150 Boulevard Haussmann, Paris VIII, France. Suggest that you write to them directly.

Dethermalizer Fuse . . . How can I make a good fuse to use as a timer with rubber bands?

James J. Morris, Phila., Penna.

• 32 thread butcher's cord is excellent for fuses. The 24 thread has a tendency to go out. It costs about $1.80 for a 3 year supply at most paper and twine companies. Cotton clothes line on sale at all 5 & 10's is good, as is trench fuses obtainable at most hardware stores. All these have been time proven and require no treating. Test burn to decide on length to use.

Compares John Bull & Uncle Sam . . . I am writing this letter to try to correct the erroneous impresson given by Frank Ehling of the British contest flier.

Once and for all let me clear up the matter of British engines and their prices. An Allbon Javelin diesel .099 costs $9.50 and an Arden .099 $8.75, and the Javelin is much more powerful. (I know, I own both!) A Frog 500 (29) is equal in power and runs to a Forster 29 while only costing $11.20 as compared to $14.25. (It is a glow plug engine incidentally.) I could give many other examples as well (our latest kits are cheaper than yours and equal in quality).

Our contest fliers are all-rounders in the true sense of the word as they fly power, rubber and glider. Your all-rounders usually fly different types of power jobs. I was in the U.S.A. in 1947 and most of your modellers seemed to think that rubber was merely used for holding on gas job wings. We are definitely up to your standard in free-flight power. I met an American modeller last year and he came to various contests with me and confirmed this. We are ahead of you in rubber and glider, the latter appears to be neglected almost completely by you.

Indoor flying has been almost neglected since 1939, but an indoor Nationals is being held this year. In 1939 the H. L. stick record was 18 minutes 52 secs. I think this compares favourably with your pre-war record. Stunt control line flying has reached a very high standard now but you are still ahead on speed. I write this from experience as I fly in free-flight power, rubber and glider with a certain measure of success in power. I should like to start a correspondence with an American contest flier who enters the same type of contests I do.

V. Gays, 38 Marlow Court, Willesden Lane N.W. 6, London, England

Skyraider Prop . . . I am building S. Calhoun Smith's AD 2 Skyraider but I can't seem to find a scale Aeroproducts prop as illustrated on plans. Can you tell me where I can get one?

Joe Adams, Los Angeles, Calif.

• There are no scale Aeroproducts propellers available commercially. Drawings are of the real propeller used on the big Skyraider. You will have to carve your own, or make up a four-blader from regular model props, notching both hubs to fit together.

Half-A F/F on CO_2 . . . I would like to know if a Half-A Free Flight model would fly on a "O.K." CO_2?

If one would, which plane do you think would be best for a CO_2: Miss Quito, Little Twister, Strato-Flash, Little Senator, Skylark?

Philip Antisdel, Milford, Iowa

• The OK CO_2 engine will fly most Half-A planes very well. However, the cartridge holder should be installed nearly vertical for best results (feed pipe at top) so a moderately deep fuselage is desirable. The Skylark has plenty of room for the tank in the cabin. On pylon designs such as Little Twister, you can thicken the pylon enough to fit in the cartridge holder.

Three on R/C . . . I wish to tap your store of knowledge on three questions. One, what World War II plane is best fitted for radio-control flying? Two, what would be the best control unit, R.C.H. or Aerotrol? Three, where would I find detailed information on such things as whether to use flaps, etc?

Willy Green, Denton, Tex.

• The SE-5 or Camel would be good as both have plenty of wing area and dihedral. R.C.H. and Aerotrol equipment are very similar and either should give good results.

For your first R/C job we strongly recommend that you use only rudder with escapement and possibly a "beep box" to aid your operation.

Tank for CO_2 Engine . . . I would like to know how to get a tank for a Campus Bee CO_2 in case I order one without a tank. How much would it cost?

Also, how would you refill it, with a capsule or do you have to have a special kind of pump or something?

Van Creech, Salemburg, N. C.

• As far as we know, the Campus engines are no longer available. However, the Buzz Bee, sold by A. H. C., is very similar and the tanks are interchangeable. It is quite possible you could get a tank from this source.

The tanks of Campus A-100 and Campus Bee, also Buzz are filled from a standard CO_2 capsule placed in a special holder. These holders were furnished with the engines and enabled the user to get 5-7 flights from the A-100 and 3-4 flights from cartridge with the Bee engines.

Dope and/or Stain . . . I am building a model of a 20 ft. Chris-Craft Cruiser. The finish is dark mahogany. How can I get the mirror-like finish of a doped model and still have the stained grain?

I have tried varnish stain with dope over it but the dope dissolves the stain. I have also tried the stain over filler but the stain does not dry smooth and will not sand.

Stan Hardin, Brevard, N. C.

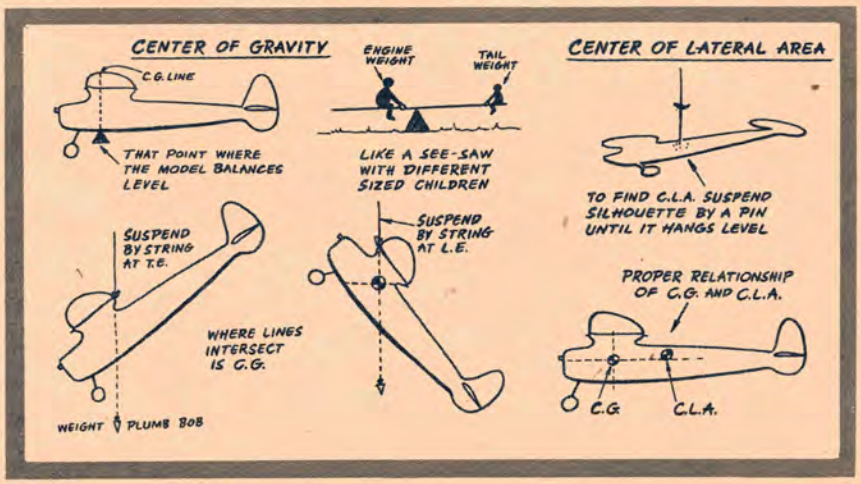
• If your model is made of balsa, your best bet would be brown dope. Mix it with red and/or black to get the color you want. You might try coloring clear dope with household dye such as Tintex. Don't mix dope with varnish. Use either oil base (varnish) paints, or dopes throughout.

If your model is built of mahogany, don't try to stain it, just use clear dope over the wood. This will darken the wood considerably.

AA Version of Skyraider . . . You had plans for a Douglas Skyraider. I would like to build this plane, but since my income is very small (a small weekly allowance) I wouldn't be able to afford it or the motor. Could I have some suggestions as to how I could simplify construction and scale it down to AA size?

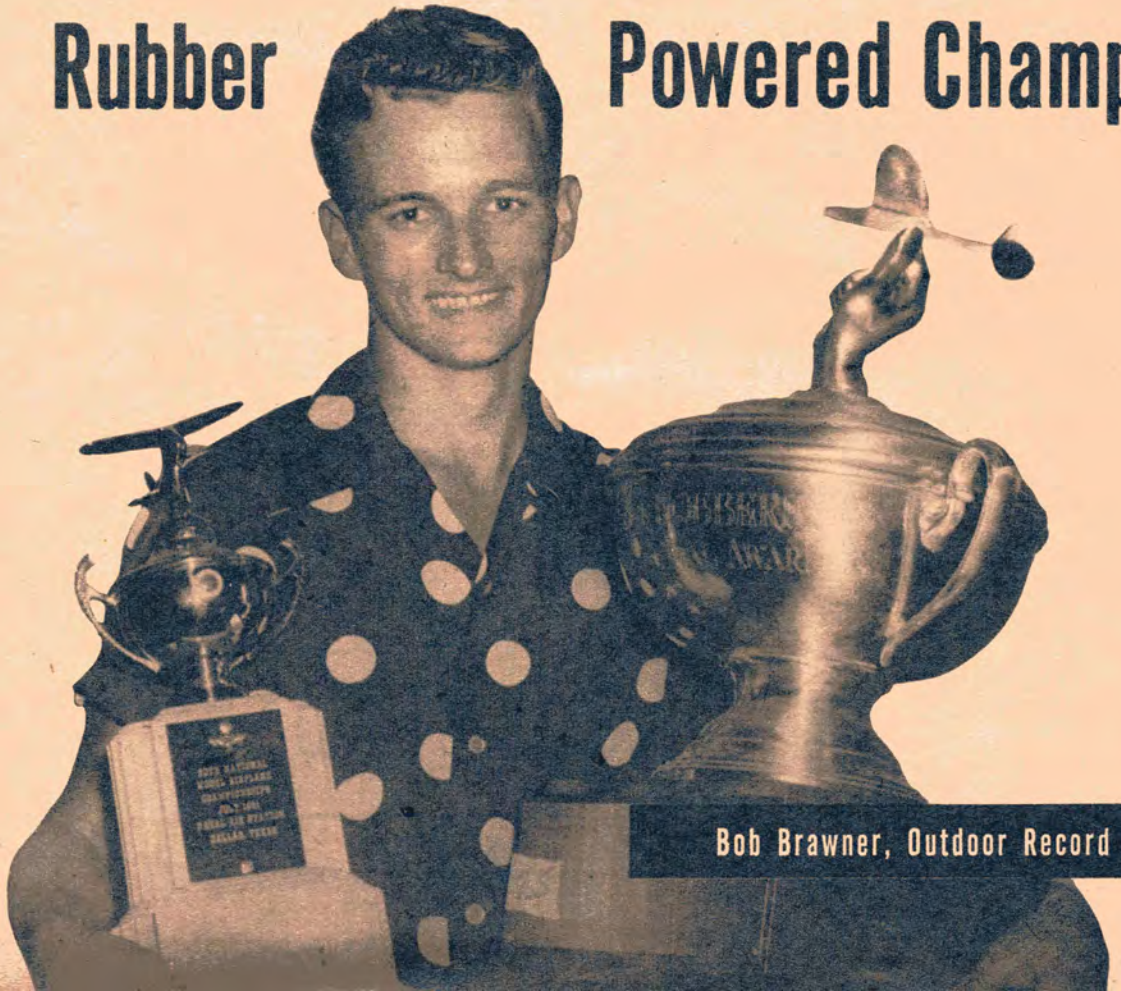
Robert Schwarz, New York, N. Y.

(Continued on page 78)


CENTER OF GRAVITY
C.G. LINE
THAT POINT WHERE THE MODEL BALANCES LEVEL
ENGINE WEIGHT
TAIL WEIGHT
LIKE A SEE-SAW WITH DIFFERENT SIZED CHILDREN
CENTER OF LATERAL AREA
TO FIND C.L.A. SUSPEND SILHOUETTE BY A PIN UNTIL IT HANGS LEVEL
SUSPEND BY STRING AT T.E.
WHERE LINES INTERSECT IS C.G.
WEIGHT
PLUMB BOB
SUSPEND BY STRING AT L.E.
PROPER RELATIONSHIP OF C.G. AND C.L.A.
C.G
C.L.A.

George DeLaMater, Master of Microfilm

Rubber Powered Champs



Bob Brawner, Outdoor Record Holder

Outdoor Record Holder

The Man: Bob Brawner, 18, freshman at Arizona State College. Brother interested him in modeling in 1940. Holds 27 trophies, has set 15 National records, crowned Arizona State Champion. Photo shows him holding the prized Tulsa Glue Dobbers Glider Trophy. Member of the Phoenix MAC.

The Model (*Brawner talking*): I have held several National records with this model and won a lot of contests with it. I won first place at the 1949 All Western Open and set an American record. At the 1951 Nationals I won first place, and previous to this meet set a new record at the Arizona Plymouth Eliminations. There's no point in listing all the other contests in which this model has come out on top. Take my word, it's surprised even me.

First build the body by constructing the two sides one on top of the other, then putting them together as shown. Fill in sections with ⅛" balsa and plank bottom. Cover body with red Jap tissue (double) and put on four coats of thin dope. For wing, just cut ribs all the same size and lay down leading and trailing edge and insert the ribs, after which put in the spars and tips. Build one wing, and when that is dry build other wing on same plan.

Build the stab in the same manner as wing. Rudder, wing, and stab are all covered with Jap tissue and doped with four coats of very thin dope. The prop is the most important part of the airplane; you should take lots of time in carving it; cover with tissue and dope well. I use 16 strands of 3/16" T-56 rubber 34 in. long and get good results. This model should climb to the right and glide to the right. If properly built and adjusted you will have a winner.

Indoor Specialist

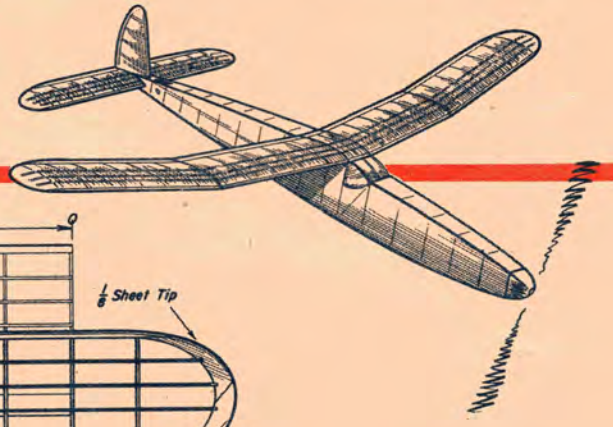
The Man: George DeLaMater, 29, group leader in the research department of Mallinckrodt Chemical Works, St. Louis, Mo. Self-taught modeler. The first thermal flight he ever saw was made by one of his models, and the first gas model he ever saw was one he built himself. Began building in 1932 with 10¢ solid kit.

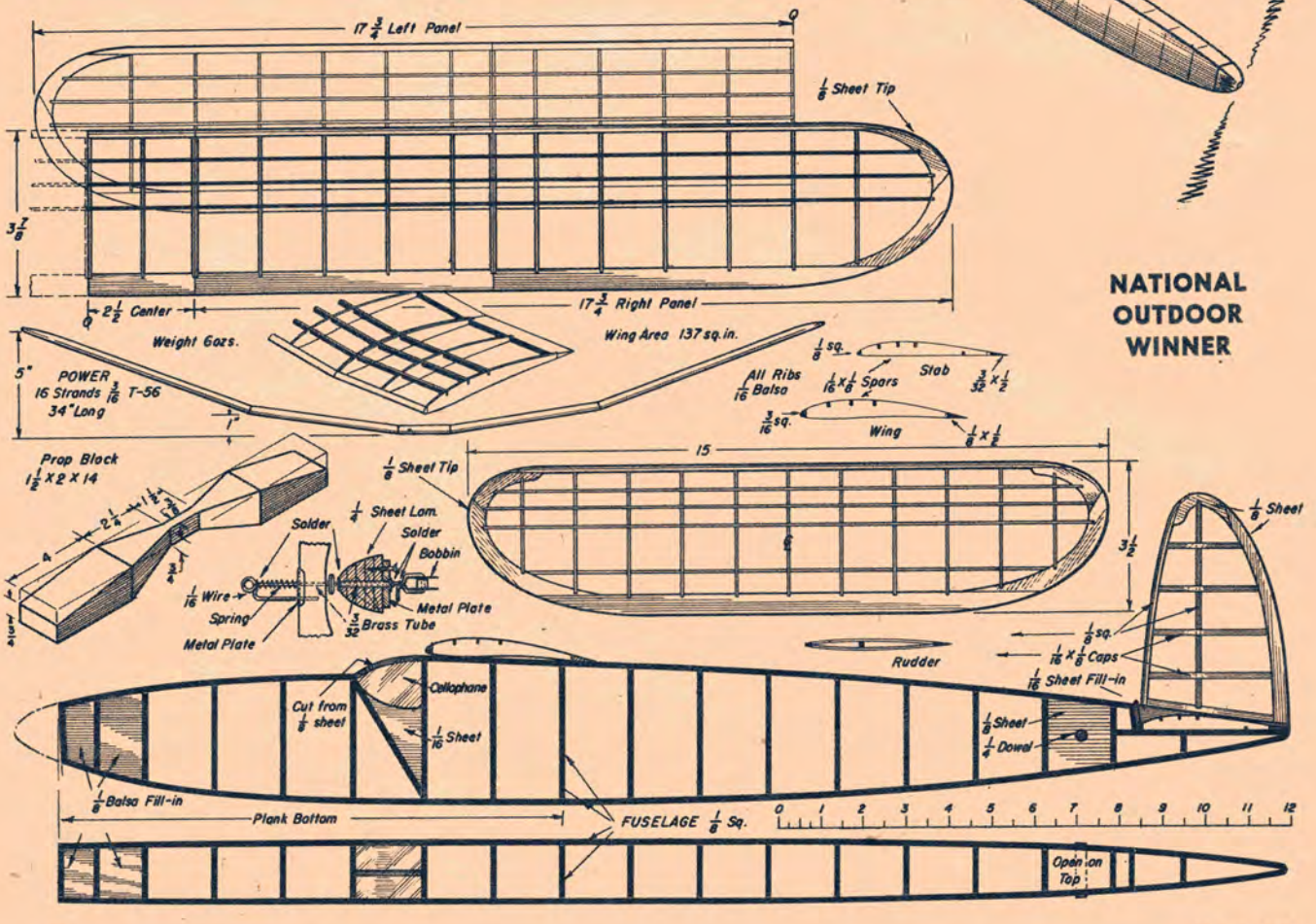
Scientific member, AMA, and member of the American Chemical Society. Member of '38 Wakefield Team. Married, wife's name is Bonnie, has 2-year-old daughter, Carol Ann.

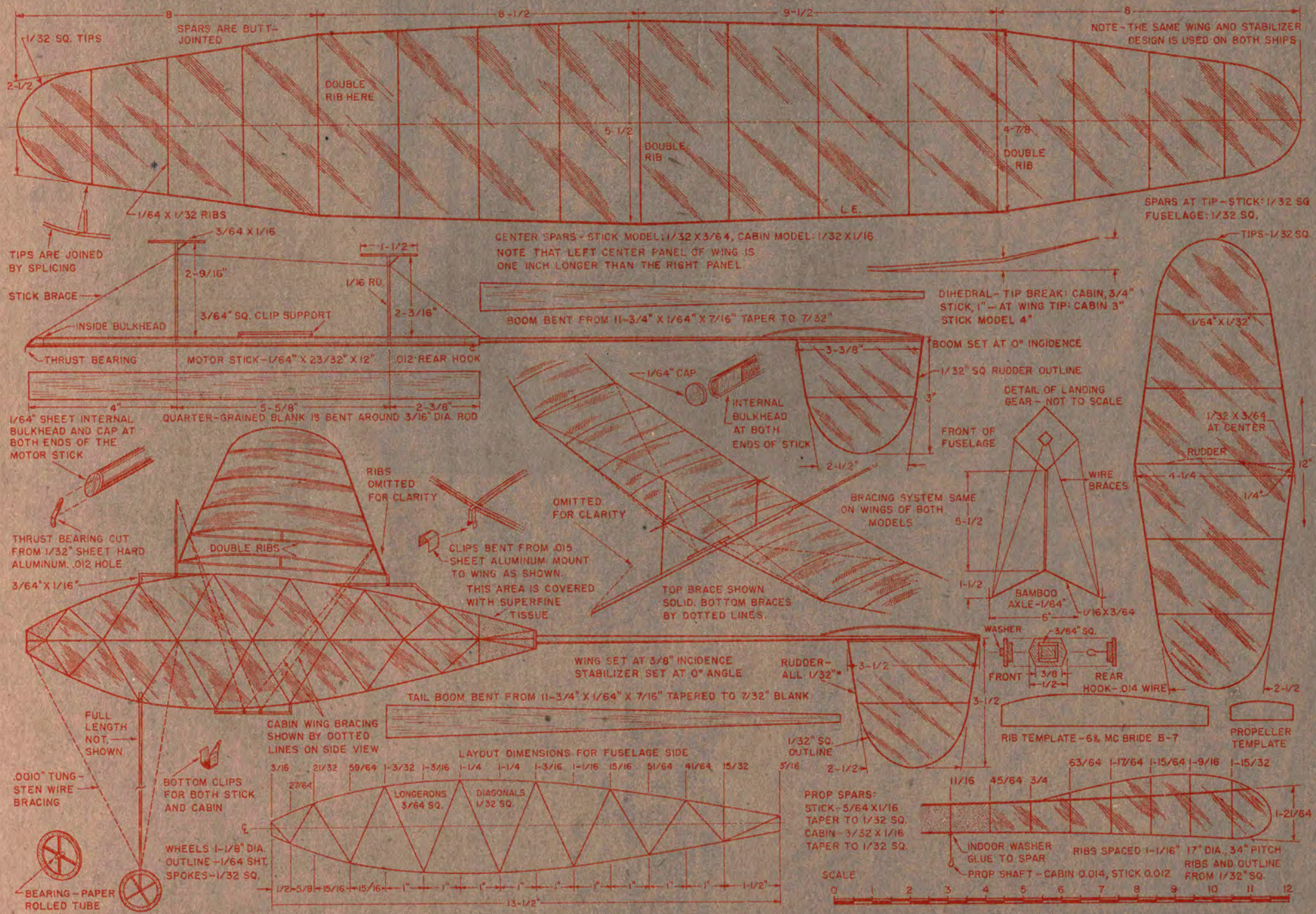
The Models (*DeLaMater speaking*): Here is a pair of class C indoor models with an impressive contest record, winning three out of four possible first places in the only two Nationals in which they have been entered.

At the 1949 Olathe Nationals, the cabin model took first place with a flight of 19:16.6 to win the Bloomingdale trophy. The stick model took seventh place with its second flight of 20:21; unfortunately, a broken motor stick prevented it from putting in a third flight.

During the week preceding the 1951 Nationals at Dallas, the author built a new pair of models somewhat lighter than the previous ones, but was unable to test-fly them before the day of the actual contest. Microfilm flying started in the Will Rogers Coliseum in Fort Worth at 3 P.M., and after a couple of short test hops the stick model was started off (*Continued on page 64*)





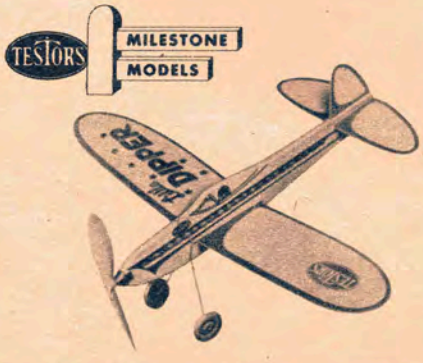

NATIONAL INDOOR WINNERS
8
8-1/2
9-1/2
8
1/32 SQ. TIPS
SPARS ARE BUTT-JOINTED
NOTE - THE SAME WING AND STABILIZER DESIGN IS USED ON BOTH SHIPS
2-1/2
DOUBLE RIB HERE
5-1/2
DOUBLE RIB
4-7/8
DOUBLE RIB
L.E.
1/64 X 1/32 RIBS
SPARS AT TIP - STICK: 1/32 SQ FUSELAGE: 1/32 SQ.
3/64 X 1/16
1-1/2
TIPS ARE JOINED BY SPLICING
CENTER SPARS - STICK MODEL: 1/32 X 3/64, CABIN MODEL: 1/32 X 1/16
NOTE THAT LEFT CENTER PANEL OF WING IS ONE INCH LONGER THAN THE RIGHT PANEL
DIHEDRAL - TIP BREAK: CABIN 3/4" STICK 1" - AT WING TIP: CABIN 3" STICK MODEL 4"
TIPS-1/32 SQ.
STICK BRACE
2-9/16"
1/16 RD.
2-3/16"
3/64" SQ. CLIP SUPPORT
INSIDE BULKHEAD
BOOM BENT FROM 11-3/4" X 1/64" X 7/16" TAPER TO 7/32"
BOOM SET AT 0° INCIDENCE
1/64" X 1/32"
THRUST BEARING
MOTOR STICK - 1/64" X 23/32" X 12"
.012 REAR HOOK
3-3/8"
1/32" SQ RUDDER OUTLINE
1/64" CAP
INTERNAL BULKHEAD AT BOTH ENDS OF STICK
3"
DETAIL OF LANDING GEAR - NOT TO SCALE
FRONT OF FUSELAGE
1/32 X 3/64 AT CENTER
RUDDER
12"
4"
5-5/8"
2-3/8"
1/64" SHEET INTERNAL BULKHEAD AND CAP AT BOTH ENDS OF THE MOTOR STICK
QUARTER-GRAINED BLANK IS BENT AROUND 3/16" DIA. ROD
2-1/2"
WIRE BRACES
4-1/4
1/4"
RIBS OMITTED FOR CLARITY
OMITTED FOR CLARITY
BRACING SYSTEM SAME ON WINGS OF BOTH MODELS
5-1/2
THRUST BEARING CUT FROM 1/32" SHEET HARD ALUMINUM. .012 HOLE
DOUBLE RIBS
CLIPS BENT FROM .015 SHEET ALUMINUM. MOUNT TO WING AS SHOWN.
THIS AREA IS COVERED WITH SUPERFINE TISSUE
TOP BRACE SHOWN SOLID. BOTTOM BRACES BY DOTTED LINES.
1-1/2
BAMBOO AXLE-1/64"
6"
1/16 X 3/64
3/64" X 1/16"
WASHER
3/64" SQ.
WING SET AT 3/8" INCIDENCE
STABILIZER SET AT 0° ANGLE
RUDDER - ALL 1/32"
3-1/2
FRONT
3/8
1/2
REAR HOOK - .014 WIRE
2-1/2
TAIL BOOM BENT FROM 11-3/4" X 1/64" X 7/16" TAPERED TO 7/32" BLANK
3-1/2
FULL LENGTH NOT SHOWN
CABIN WING BRACING SHOWN BY DOTTED LINES ON SIDE VIEW
LAYOUT DIMENSIONS FOR FUSELAGE SIDE
1/32" SQ. OUTLINE
RIB TEMPLATE - 6% MC BRIDE B-7
PROPELLER TEMPLATE
3/16 21/32 59/64 1-3/32 1-3/16 1-1/4 1-1/4 1-3/16 1-1/16 15/16 51/64 41/64 15/32 3/16
27/64
LONGERONS 3/64 SQ.
DIAGONALS 1/32 SQ.
.0010" TUNGSTEN WIRE BRACING
BOTTOM CLIPS FOR BOTH STICK AND CABIN
PROP SPARS: STICK - 5/64 X 1/16 TAPER TO 1/32 SQ. CABIN - 3/32 X 1/16 TAPER TO 1/32 SQ.
63/64 1-17/64 1-15/64 1-9/16 1-15/32
11/16 45/64 3/4
1-21/64
WHEELS 1-1/8" DIA. OUTLINE - 1/64 SHT. SPOKES - 1/32 SQ.
INDOOR WASHER GLUE TO SPAR
RIBS SPACED 1-1/16" 17" DIA., 34" PITCH
PROP SHAFT - CABIN 0.014, STICK 0.012
RIBS AND OUTLINE FROM 1/32" SQ.
BEARING - PAPER ROLLED TUBE
1/2 5/8 15/16 15/16 1" 1" 1" 1" 1" 1" 1" 1" 1" 1" 1-1/2"
13-1/2"
SCALE
0 1 2 3 4 5 6 7 8 9 10 11 12

2 NEW PROD
for yo

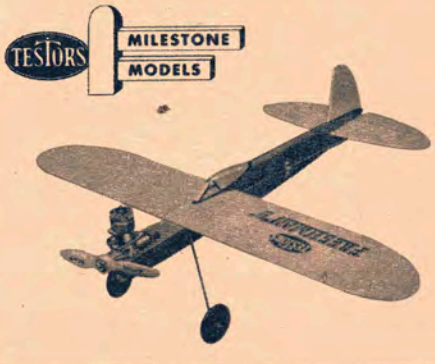
You will find TESTORS POLYSTYRENE CEMENT a really practical home necessity for many, many uses. Made especially for cementing polystyrene plastic, it functions as more than just an adhesive . . . actually it *fuses* the parts together so that they are permanently joined in a real bond. Perfect for model building; also for all kinds of mending and repairing jobs on plastic toys, household articles, etc. Easy to use. Just apply with stick or pencil tip to edges of parts. At your dealer's . . . now . . . in handy 15c bottles.

1st MILESTONE MODEL
Hand-Launched
Go-Hi
10c — Individually Packaged — 25c

2nd MILESTONE MODEL
Rubber-Powered
LITTLE DIPPER and BIG DIPPER
50c — Individually Packaged — $1.00



3rd MILESTONE MODEL
Control-Line Trainer
FRESHMAN . . . "9" . . . "19" . . . "29"*
$2.48 $2.98 $3.98



DUCTS you from TESTORS

This is what you have been waiting for . . . a durable, high gloss, easy-to-brush PAINT FOR PLASTICS developed especially for use on plastic model airplanes! Provides excellent one-coat coverage under most conditions and with most color combinations . . . can be applied over a previous, still-wet coat without smudging or blending . . . dries hard and slick. It has good adhesion . . . stands up under weather and rough usage . . . is easy to work with on even the trickiest decorating job. You'll also find it an ideal finish for toys, household items, dozens of other articles made of polystyrene or cellulose acetate plastics. So—get Testors Paint for Plastics in convenient 15c bottles at your dealer's now. Available in 10 popular colors: Gray, Blue, Silver, Red, Green, Olive Drab, Orange, Yellow, Black, White; also Thinner.

$100.00 CASH PRIZE FOR BEST NAME

Here's a chance for you to make money . . . have fun, too! Suggest a name for this new product; fill out the coupon below; then paste on a postcard and mail to us. In the event of duplicate entries, only the one bearing the earliest postmark will be considered.

PAINT FOR PLASTICS CONTEST
TESTOR CHEMICAL COMPANY
ROCKFORD, ILLINOIS

The name I suggest for your new product — Testors Paint for Plastics — is:

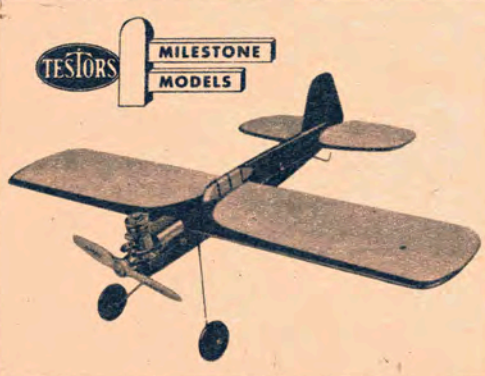
.....
(Please Print Plainly)

My Name.....

Address.....

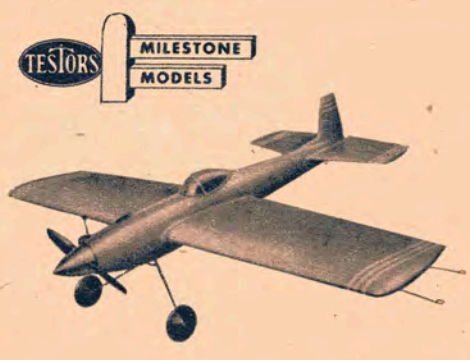
City..... Zone..... State.....

4th MILESTONE MODEL
Control-Line Stunt Trainer
SOPHOMORE . . . "9" . . . "19" . . . "29"*
$2.48 $2.98 $3.98



5th MILESTONE MODEL
Control-Line Stunt
JUNIOR . . . "9" . . . "19" . . . "29"*
$3.48 $3.98 $4.98

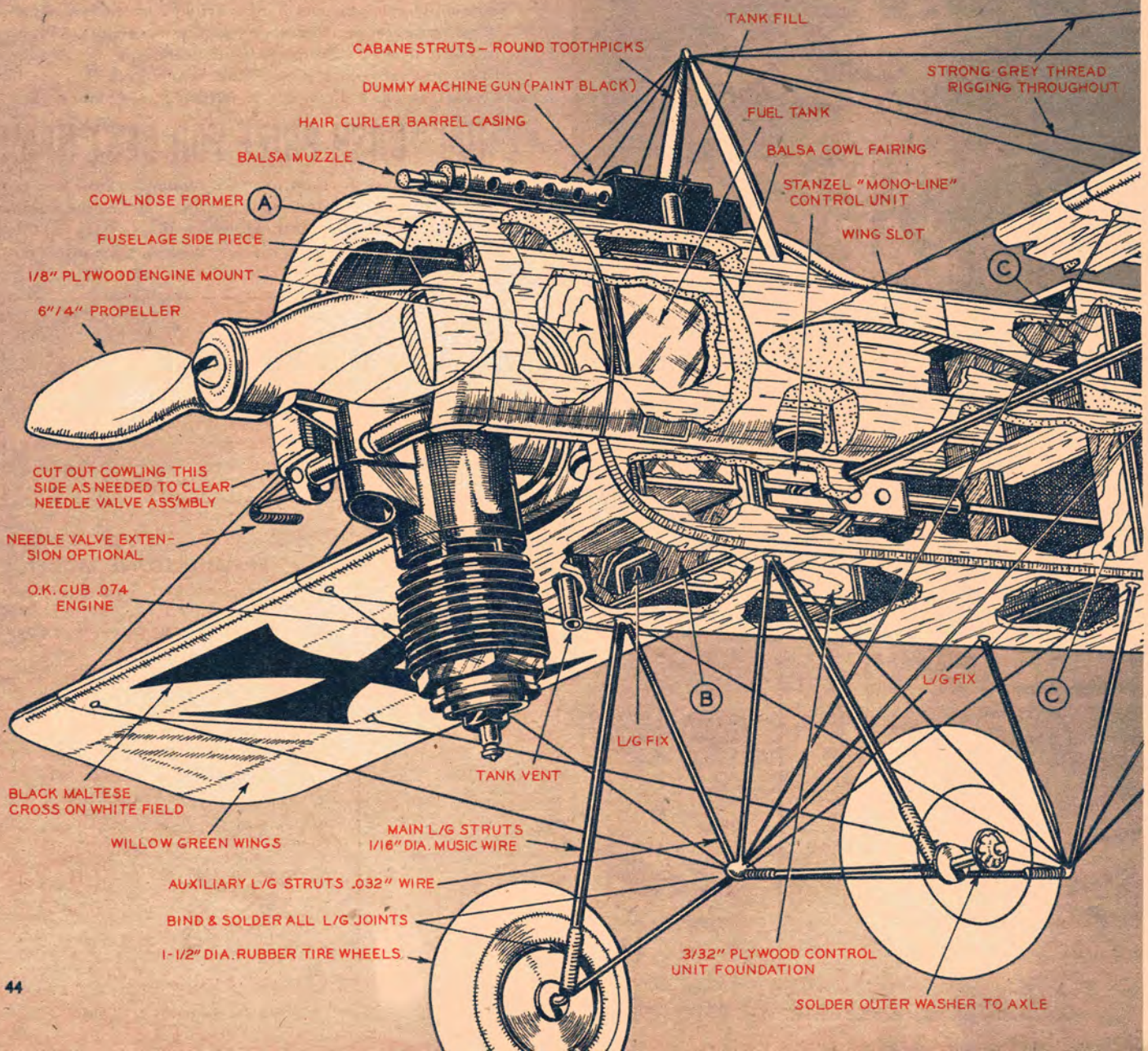
6th MILESTONE MODEL
Control-Line Super Stunt
SENIOR . . . "9" . . . "19" . . . "29"*
$3.48 $3.98 $4.98



*For the McCOY "9", "19", and "29" engines, the Testor-McCOY "9", "19", and "29" propellers, and Testors "39" fuel.

Fokker's

Standard armament of the E-I was single Spandau (Maxim) machine gun mounted atop cowl. Max Immelmann installed two more.


TANK FILL
CABANE STRUTS – ROUND TOOTHPICKS
DUMMY MACHINE GUN (PAINT BLACK)
STRONG GREY THREAD RIGGING THROUGHOUT
HAIR CURLER BARREL CASING
FUEL TANK
BALSA MUZZLE
BALSA COWL FAIRING
COWL NOSE FORMER (A)
STANZEL "MONO-LINE" CONTROL UNIT
FUSELAGE SIDE PIECE
WING SLOT
1/8" PLYWOOD ENGINE MOUNT
6"/4" PROPELLER
CUT OUT COWLING THIS SIDE AS NEEDED TO CLEAR NEEDLE VALVE ASS'MBLY
NEEDLE VALVE EXTEN-SION OPTIONAL
O.K. CUB .074 ENGINE
L/G FIX
L/G FIX
TANK VENT
BLACK MALTESE CROSS ON WHITE FIELD
WILLOW GREEN WINGS
MAIN L/G STRUTS 1/16" DIA. MUSIC WIRE
AUXILIARY L/G STRUTS .032" WIRE
BIND & SOLDER ALL L/G JOINTS
1-1/2" DIA. RUBBER TIRE WHEELS
3/32" PLYWOOD CONTROL UNIT FOUNDATION
SOLDER OUTER WASHER TO AXLE

First Fighter

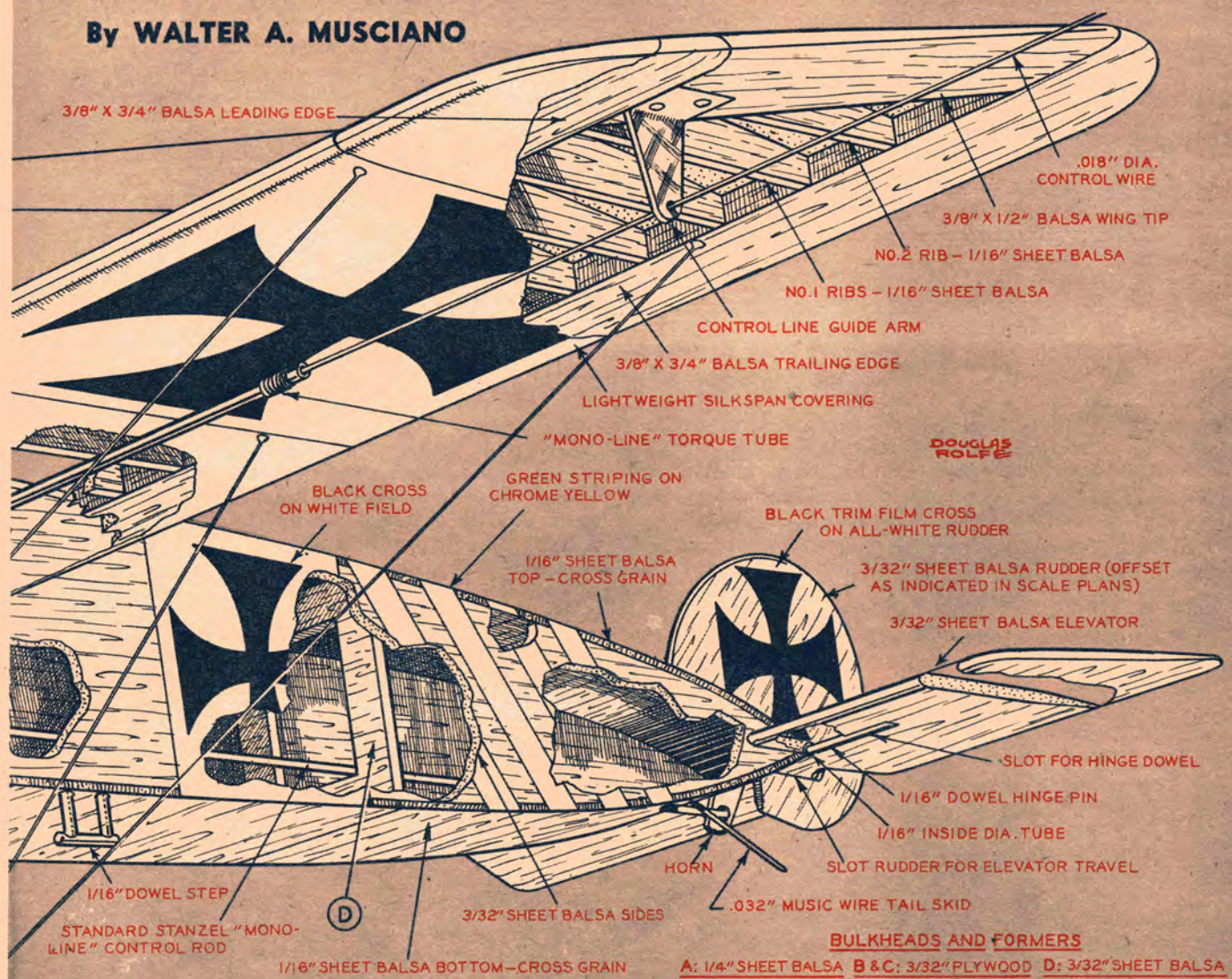
■ During the early months of the First World War practically all aerial fighting was done by two-place aircraft flying side by side with the gunners firing broadsides at each other! The French and English pilots were taken by surprise when a Fokker E-1 (used as a pure scout plane until that time) veered toward them and began spitting lead between the propeller blades from its synchronized machine gun.

Oswald Boelcke, who developed many early aerial combat tactics, flew an E-1 as did Count von Holck and Baron Manfred von Richtofen. Many later German aces used the E-1 for training purposes before graduating to the Albatros and other advanced craft.

This small fighter was powered by an 80 hp, nine-cylinder-rotary, air-cooled engine. This whirling mass caused a considerable rolling tendency of the plane which was quite a handicap during combat. Top speed was about 85 mph. A glance at the plans will indicate the absence of ailerons, stabilizer and vertical fin. Wing warping was used to obtain lateral control and the entire empennage surface was used for control purposes, a common practice at that time.

Since we're partial to "long line" flying we used Stanzel's Mono-Line for complete control even though the lines may go slack (which often happens with the longer flight lines). Plans also illustrate the more

By WALTER A. MUSCIANO


3/8" X 3/4" BALSA LEADING EDGE
.018" DIA. CONTROL WIRE
3/8" X 1/2" BALSA WING TIP
NO.2 RIB – 1/16" SHEET BALSA
NO.1 RIBS – 1/16" SHEET BALSA
CONTROL LINE GUIDE ARM
3/8" X 3/4" BALSA TRAILING EDGE
LIGHTWEIGHT SILKSPAN COVERING
"MONO-LINE" TORQUE TUBE
DOUGLAS ROLFE
BLACK CROSS ON WHITE FIELD
GREEN STRIPING ON CHROME YELLOW
BLACK TRIM FILM CROSS ON ALL-WHITE RUDDER
1/16" SHEET BALSA TOP – CROSS GRAIN
3/32" SHEET BALSA RUDDER (OFFSET AS INDICATED IN SCALE PLANS)
3/32" SHEET BALSA ELEVATOR
SLOT FOR HINGE DOWEL
1/16" DOWEL HINGE PIN
1/16" INSIDE DIA. TUBE
SLOT RUDDER FOR ELEVATOR TRAVEL
HORN
.032" MUSIC WIRE TAIL SKID
1/16" DOWEL STEP
STANDARD STANZEL "MONO-LINE" CONTROL ROD
D
3/32" SHEET BALSA SIDES
1/16" SHEET BALSA BOTTOM – CROSS GRAIN
BULKHEADS AND FORMERS
A: 1/4" SHEET BALSA B & C: 3/32" PLYWOOD D: 3/32" SHEET BALSA

This tiny rotary engine powered pioneer fighter completely changed aerial combat tactics in 1914 and is considered by many authorities to be the "granddaddy" of the single-seat fighter. Anthony Fokker developed the first machine gun and sent it into battle on his Eindecker (single "deck" or wing).

common and usual bellcrank type of controls.

We installed the engine inverted so as not to disturb the fuselage profile. Besides, the full-scale engine protruded below the cowl as well. Either upright or inverted engine installation can be used, beam or radially mounted. The prototype model employed scale elevators (no stabilizer); we have included the more conventional semi-scale stabilizer-elevator combination.

As usual the fuselage is the first item to be built. Begin by cutting the sides from rather firm balsa sheet and cut away the slot for the wing. Cut all bulkheads to shape and attach them to one fuselage side, holding in place with pins. Add the other fuselage side to the bulkheads, cement well. Cover the fuselage top and bottom aft of bulkhead "D" only and cement the aluminum, brass or hard plastic elevator hinge tube to the fuselage rear. Reinforce with crinoline or other similar fabric. Cement liberally.

Cut the elevator to shape and cut a groove in it to receive the dowel hinge pin; this dowel should fit hinge tube without excessive wobbling. Pass the dowel through the tube and cement the protruding ends into the groove in the elevator.

Our installation of the control system, in the prototype model: First make a hole in the fuselage side to admit the "torque tube." Mount the "control actuator" to the plywood foundation and attach the "cam slider" to the control unit in accordance with the manufacturer's directions. Cement the plywood foundation securely to bulkhead "B" and add the plywood brace as well. Use plenty of cement.

Slip the control horn onto the control rod (both supplied with the "control actuator") and pass the control rod through the slot in the fuselage bottom and attach it to the "cam slider." Cement the horn to the elevator bottom. Add the engine mounts, either bulkhead or beam.

Bend the landing gear to shape and bind all joints with fine soft wire (milk bottle cap wire will do) and solder. The landing gear assembly is now held to bulkheads "B" and "C" with crinoline and plenty of cement. The main strut is bent from heavier wire than the remainder of the landing gear. Add the fuel tank at this time if it is not attached to the engine. The remainder of the fuselage can now be covered with the grain running spanwise for ease of application and greater strength. Sand well and add the tail skid.

The four nose fairing pieces are cut to shape and cemented to the fuselage. When dry they are carved to shape with a sharp knife or razor blade, then sanded smooth. Follow the front and top views for guidance in this operation.

Scale rib spacing was used in the wing construction. Exceptional strength is attained in view of the fact that both leading and trailing edges can be made in one piece from tip to tip because no dihedral or sweep-back is required. Pin the edges over the plan to work table. Cut the ribs from the specified sheet balsa and cement them between the leading and trailing edges directly over the plan.

Cement the wing tips in place at this time and, when dry, remove from the table and carve the leading and trailing edges and wing tips to shape as the rib sections and front view illustrate. Sand smooth using a sandpaper block with No. 2/0 sandpaper, and sand the ribs with a chordwise motion. The entire wing is covered with lightweight paper, with thick dope as the adhesive. Water the wing lightly to shrink the covering, and when thoroughly dry, clear-dope the entire wing three times.

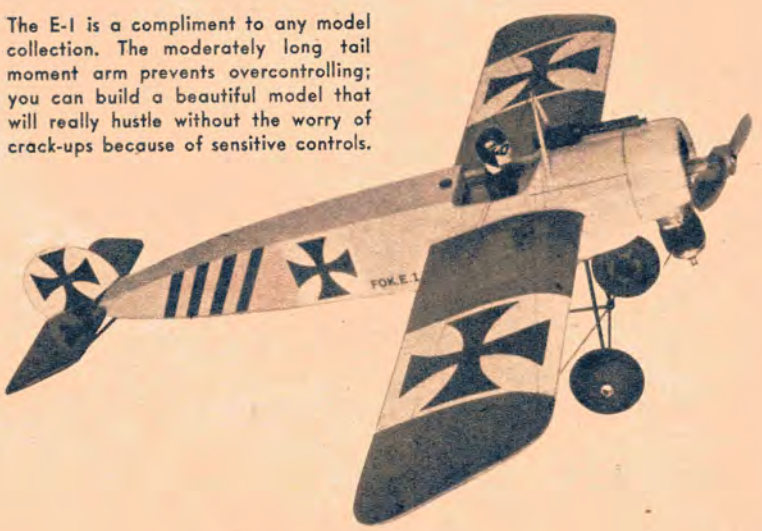
Remove a bit of the bottom covering and cut a slight amount off the leading edge in order to facilitate the cam movement. The wing is now inserted into the fuselage and, if the slots were accurately cut, the exact incidence angle will automatically be attained. Apply cement to this joint from both inside and outside of fuselage.

Sand the entire model lightly and wood-filler all exposed wood parts. A wood sealer was used and three coats were applied. Sand smooth and color the model. The prototype model does not sport a scale color scheme in view of the fact that there is no record of planes in this period having personal markings or gay colors. Standard color for Fokker E-1 machines was light buff or cream. This is because these craft were clear-doped only and therefore the unbleached cloth covering was visible.

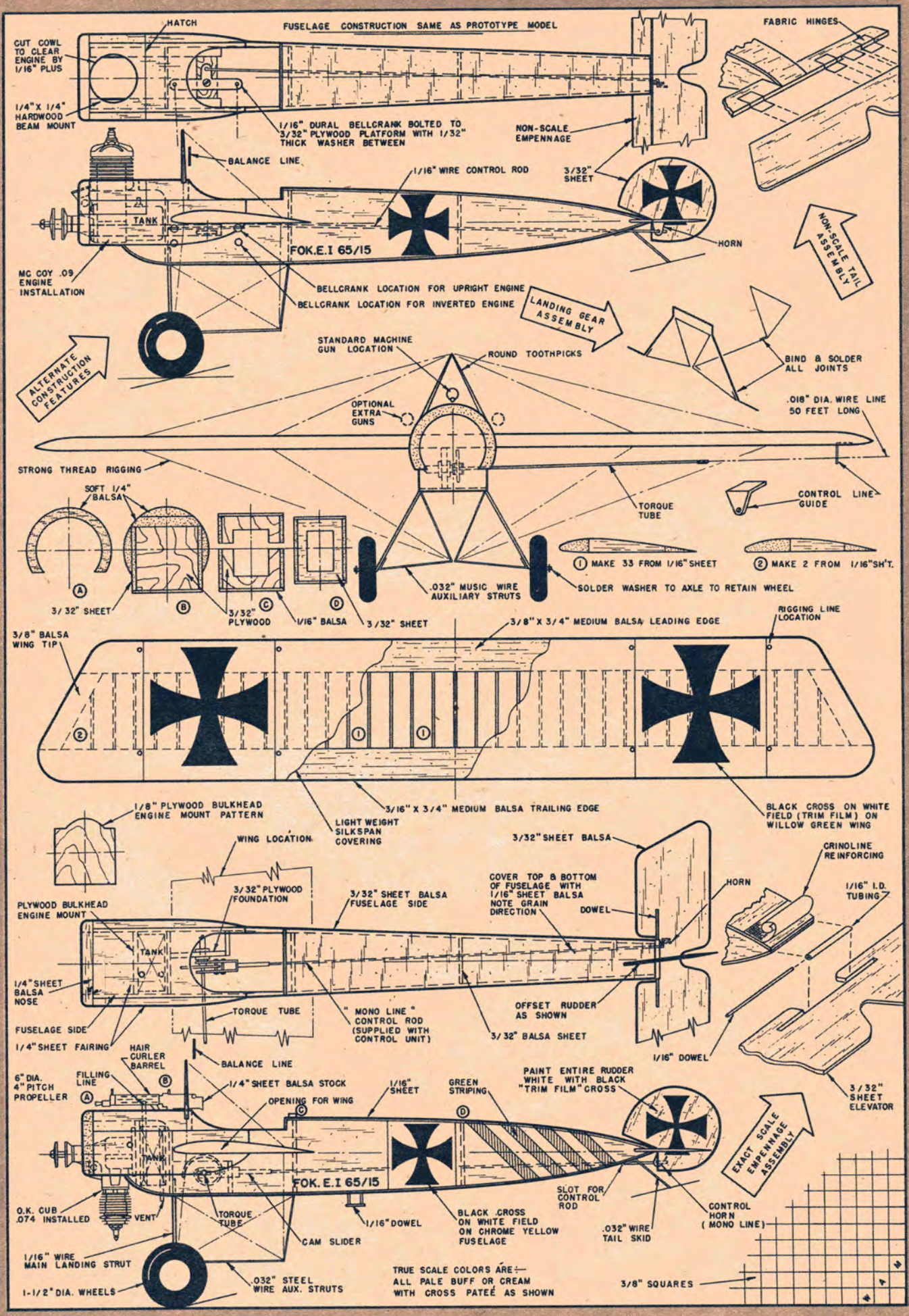
We used chrome yellow and willow green to give our model some "life." Three coats were applied, with the final one rubbed to a high gloss. Add the machine gun which is made from scrap balsa and a metal hair curler. Paint black, as well as the landing gear and step. Use Trim Film for all markings and then apply two light coats of fuel proofer. The thread rigging is now added. Install the engine; both Cub .074 and .099 were used with success. Add the wheels and a pilot if desired.

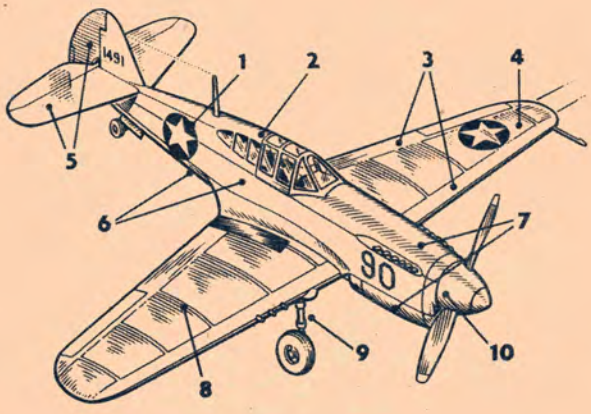
No flights should be attempted unless the model balances as shown. Add weight to the nose or tail if required. The thickness of the flight line depends on the length. We used .018" steel line fifty feet long. A schedule of line sizes is supplied with Mono-Line controls. Bellcrank type models can be flown on .008" lines from 20 to 40 feet long.

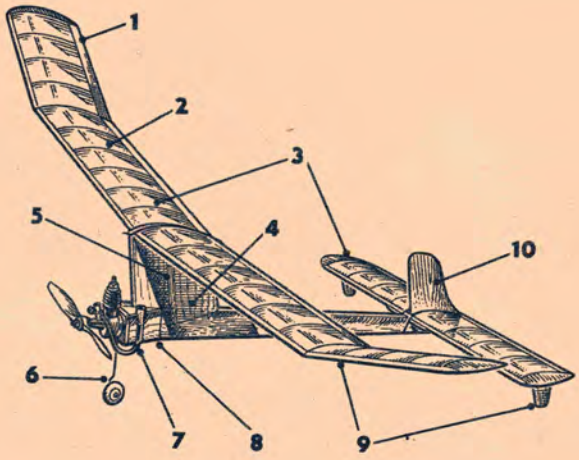
Bill of Materials will be found on page 63.



The E-1 is a compliment to any model collection. The moderately long tail moment arm prevents overcontrolling; you can build a beautiful model that will really hustle without the worry of crack-ups because of sensitive controls.


FUSELAGE CONSTRUCTION SAME AS PROTOTYPE MODEL
HATCH
CUT COWL TO CLEAR ENGINE BY 1/16" PLUS
1/4" X 1/4" HARDWOOD BEAM MOUNT
1/16" DURAL BELLCRANK BOLTED TO 3/32" PLYWOOD PLATFORM WITH 1/32" THICK WASHER BETWEEN
NON-SCALE EMPENNAGE
FABRIC HINGES
BALANCE LINE
1/16" WIRE CONTROL ROD
3/32" SHEET
TANK
FOK.E.I 65/15
HORN
NON-SCALE TAIL ASSEMBLY
MC COY .09 ENGINE INSTALLATION
BELLCRANK LOCATION FOR UPRIGHT ENGINE
BELLCRANK LOCATION FOR INVERTED ENGINE
LANDING GEAR ASSEMBLY
ALTERNATE CONSTRUCTION FEATURES
STANDARD MACHINE GUN LOCATION
ROUND TOOTHPICKS
BIND & SOLDER ALL JOINTS
OPTIONAL EXTRA GUNS
.018" DIA. WIRE LINE 50 FEET LONG
STRONG THREAD RIGGING
TORQUE TUBE
CONTROL LINE GUIDE
SOFT 1/4" BALSA
A
B
C
D
3/32" SHEET
3/32" PLYWOOD
1/16" BALSA
3/32" SHEET
.032" MUSIC WIRE AUXILIARY STRUTS
SOLDER WASHER TO AXLE TO RETAIN WHEEL
1 MAKE 33 FROM 1/16" SHEET
2 MAKE 2 FROM 1/16" SH'T.
3/8" BALSA WING TIP
3/8" X 3/4" MEDIUM BALSA LEADING EDGE
RIGGING LINE LOCATION
1
2
3/16" X 3/4" MEDIUM BALSA TRAILING EDGE
BLACK CROSS ON WHITE FIELD (TRIM FILM) ON WILLOW GREEN WING
1/8" PLYWOOD BULKHEAD ENGINE MOUNT PATTERN
LIGHT WEIGHT SILKSPAN COVERING
WING LOCATION
3/32" SHEET BALSA
CRINOLINE RE INFORCING
3/32" PLYWOOD FOUNDATION
3/32" SHEET BALSA FUSELAGE SIDE
COVER TOP & BOTTOM OF FUSELAGE WITH 1/16" SHEET BALSA NOTE GRAIN DIRECTION
HORN
1/16" I.D. TUBING
PLYWOOD BULKHEAD ENGINE MOUNT
DOWEL
TANK
1/4" SHEET BALSA NOSE
TORQUE TUBE
" MONO LINE " CONTROL ROD (SUPPLIED WITH CONTROL UNIT)
OFFSET RUDDER AS SHOWN
FUSELAGE SIDE
1/4" SHEET FAIRING
3/32" BALSA SHEET
1/16" DOWEL
HAIR CURLER BARREL
BALANCE LINE
6" DIA. 4" PITCH PROPELLER
FILLING LINE
1/4" SHEET BALSA STOCK
1/16" SHEET
GREEN STRIPING
PAINT ENTIRE RUDDER WHITE WITH BLACK "TRIM FILM" CROSS
OPENING FOR WING
3/32" SHEET ELEVATOR
EXACT SCALE EMPENNAGE ASSEMBLY
FOK. E.I 65/15
SLOT FOR CONTROL ROD
O.K. CUB .074 INSTALLED
VENT
TORQUE TUBE
1/16" DOWEL
BLACK CROSS ON WHITE FIELD ON CHROME YELLOW FUSELAGE
.032" WIRE TAIL SKID
CONTROL HORN (MONO LINE)
CAM SLIDER
1/16" WIRE MAIN LANDING STRUT
1-1/2" DIA. WHEELS
.032" STEEL WIRE AUX. STRUTS
TRUE SCALE COLORS ARE — ALL PALE BUFF OR CREAM WITH CROSS PATEE AS SHOWN
3/8" SQUARES





Colorado Killer

F&B's P-40F is neat scale or team racer.

■ This scale model of the famed old Curtiss Warhawk by F&B Aircraft, Denver 5, Colo., a big ship, is intended for flying scale with .19's or team racing with .29's. It was designed from the original Curtiss plans, scaled down by Bill Fox.

The fuselage will be no great chore to build, due to the form of construction used. Sides (6) are supplied cut to shape from 3/16" thick balsa; there are four balsa formers, all die-cut (2). Blocks of balsa (7) are rounded off and partially hollowed out for the nose. Fuselage parts are of fairly light wood. Intended for beam-mount engines, the cowl is big enough to take many of the popular .19 to .29 powerplants. Hardwood mounts (10) are supplied.

The landing gear is fastened into the wing; real care has been taken so the gear won't fold at the wrong time. Heavy ply insets are cemented between the leading edge and the half-inch-square hardwood center spar. Ready-shaped wire legs (9) are attached to the ply with cotter pins and washers, which should be soldered for additional security.

The wing is a simple assembly job, utilizing formed and notched leading and trailing edges (3). The front one should be tapered toward the tips to gain the correct wing shape. Ribs (8) are die-cut. Wing is tissue covered (4).

Tail surfaces (5) are formed from ready-cut sheets of 3/16" balsa and need only slight shaping on the edges. Cloth hinges are furnished.

The plans are full size and there are ample written instructions. Complete decal insignia (1) included.

Maryland Mite

Contest Craft's Thin Man for A/2 events

■ This little Half-A ship is the result of a successful design built and flown as a C job by Phil Jackson. Contest Craft Co., Riverdale, Md., reduced it to the baby size. Test models flown with Cub .049's averaged 1.5 min. on 15 sec. motor runs on cool spring evenings.

The ship will hold a 75 deg. angle throughout the climb. This design has been found excellent in windy weather; glide is fairly fast and very flat.

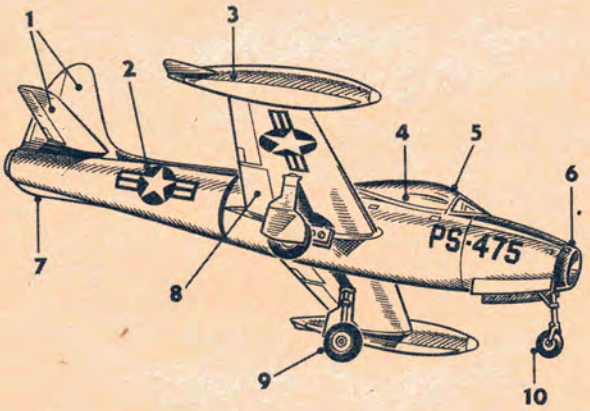
The fuselage (4) is a shaped piece of hard balsa 5/16" thick. It is cut to the required taper; just round the edges. The pre-shaped pylon has a hardwood stiffener (5) and is built up on the fuselage in a manner that assures maximum strength. The nose assembly is simple but very rugged. A single-wheel landing gear (6) is provided.

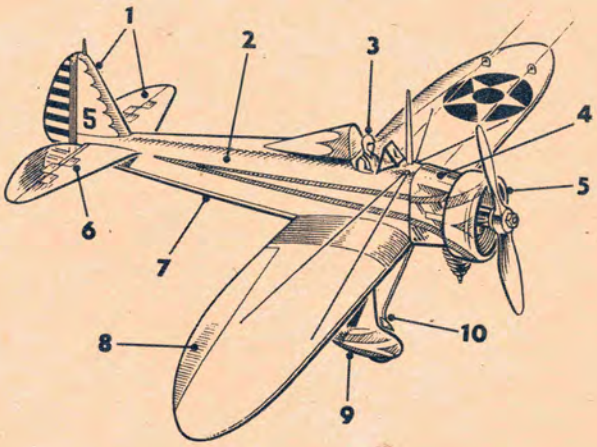
Wing and stabilizer are of the same construction—in fact they use the same ribs, and trailing edge (1) supplied cut to shape, and tips. Ribs (2) are in a die-cut sheet and tips are ready to use. There is no undercamber, so assembly should be a cinch. The 1/8" thick rudder (10) is cemented to the stab. Joiners and subrudders are printed sheet.

The 2-ply "firewall" (8) is pre-shaped as are the fairing supports. An eye-dropper tank (7) comes in the kit. Paper covers the wing and stab (3).

Test models have been found to weigh 4.5 oz., when fitted with the Cub, and three heavy coats of dope on the fuselage raises this to the 4.9 oz. required for contest flying. Best results have been had with 6 4 and 7/3 props.

RIBBON MODELS





Made, modeled on L.I.

Dyna-Model's F-84 has scale metal parts

■ One of the members of a new line of jet planes by Dyna-Model Products Co., Oyster Bay, N. Y., this kit is representative of this concern's scale work. Other ships in the series are the MIG-15, F9F Panther, F-80 Shooting Star, and F-86 Sabrejet.

Realistic die-cast metal parts are used in the F-84. There is little or no "flash" on the 14 metal (such as 6 and 7) parts, ranging from a tiny control stick to a realistic ejection seat (4).

The landing gear legs (10) are cast; the main wheels have the wheel covers integral (9). Doors for both main and nose wheels are in the kit. Main wheels are of hardwood, and fit snugly on stubs projecting from the metal gear legs.

The fuselage is almost completely finished from hardwood and needs only a little sanding before assembly. It has a large cut-out for the cockpit. There is an instrument panel for the cockpit and a plastic canopy (5) to go over the top.

All wing (8) and tail parts (1) are in die-cut balsa sheets; the wings are of ¼" stock and the tail of 3/16". To aid in assembly, the kit includes a heavy cardboard jig. It has sections marked out for the fuselage and wings, and will assure that correct dihedral is attained.

The plans are full size for this ¼" scale model and give complete finishing and decorating instructions. Realism is assured in the finished job by the turned hardwood drop tanks (3), and a complete set of decals (2). The completed model has a span and length of about 9¼".

P-26A from Jersey

Scientific pursuit has formed ring and cowl

■ Latest Scientific Model Airplane Co., Newark, N. J., product is a semi-scale copy of the famed Boeing P-26A, the first all-metal pursuit ship used by the Army. Though listed only as semi-scale, the plane is remarkably life-like. The model has the faired-in landing gear, the large streamlined headrest, and most important, a finished aluminum speed cowl (5).

The kit is very complete and well pre-fabbed. Fuselage (2) comes in the form of a shaped hollowed-out block of balsa. You cut out wing openings on the underside—a cardboard template is furnished for this—after which the 3/16" thick balsa bottom plate (7) is attached. There is ample space in the forward section of the fuselage for almost any standard Half-A tank. Firewall is of sturdy 3-ply; the engine attaches to it radially with three wood screws. Dressing up the model nicely is a formed aluminum nose piece (4).

Tail surfaces (1) are die-cut sheet balsa with fabric hinges and hardwood elevator stiffener (6). The pre-shaped balsa wing (8) is cut to planform and airfoil shape. Trailing edges are cemented to it. The kit includes ballcrank and elevator horn, necessary mounting parts and pushrod. All landing gear parts (10), including three wheels are furnished. Landing gear fairing (9) is die-cut.

The old original P-26A's of the Thunderbird squadron had yellow wings, a blue fuselage with red striping. A decal sheet has the stripes, in addition to the Thunderbird insignia, plus wing and tail markings. There is a plastic pilot and plastic windshield supplied (3).

We'd Like You to Meet...

More famous modelplane personalities for our Hall of Fame. In response to many requests received after the appearance of the "Top Ten," AT will be introducing you to lots of outstanding air-model flyers and leaders in U. S. Any special nominees?

Andrew Petersen . . . Best known for his rubber powered models and gliders; began modeling in 1934. Organized Los Angeles Jr. Birdmen, Squadron 92. Group grew to 100 members plus. Won J.B. '36 indoor championship and trip to San Antonio for Finals. Later won trip to '39 Nats in Detroit, topping field at G.M.A.S.C. eliminations. Member of Thermal Thumbers team club, champs of '47 Minneapolis Nats. Feels his top achievement was placing on '49 Wakefield Team which went to England. Very active in Wakefield work; directed local Eliminations in '51. Also ran Plymouth Eliminations in his area. Has held National records in both Indoor Cabin and Outdoor H/L Glider. Still a Thermal Thumber; serves on Model Hobby Advisory Council. Commercial Artist for Lockheed Aircraft, married, four offspring ranging from 11 years down to 4.

Glenna Williamson . . . A fine flyer, also an invaluable organizer. Glenna has been associated with the Anderson (Indiana) Johnnies for years. She works for Delco-Remy and also runs a small model shop. Was started in model building in 1939 by boy friend who is now "friend husband." They have two boys, 7 and 2 years of age, whom Glenna expects to turn into model builders too. To date her best contest achievement is a third place won at an Indianapolis meet against all male competition. She intends to up this to a first very soon! Takes great pride in being one of the few women actively engaged in building and flying F/F planes. Also in being one who does absolutely all her own building. Flies such ships as the Zipper and Sailplane, which she considers tops. We love her for the wonderful club and contest reports she sends in, beautifully typed!

William L. Butler . . . An oldtimer, Bill held the World Record for twin pushers in 1913—173 seconds. Flight made in California, at time when most model activity was centered in East. Started model flying in 1908; continued till 1913, when he "retired" from active flying to go to college. Didn't swing a prop until 1935, when bug bit again. Has built every type from indoor to R/C, and collected many trophies. Now strictly an R/C man—placed 3rd in this event at 1951 Nats, with his little "Tumble Bug." Has been Pres. of the old Gas Model Assoc. of Southern Calif., and Vice Pres. of AMA. Aeronautical engineer for U.S. Navy. Son William is in U.S.A.F.; son Jack, in college, is a very active modeler. Bill is member of Inglewood Flightmasters, L.A. Radio Controllers, AMA, Boy Scouts, etc. Has been a radio Ham for years—call is W6JX.

Paul Gilliam . . . Ex-Californian now working in Lubbock, Texas, as photographic illustrator. For years, President of San Valeers in Glendale; in Lubbock only a short time before he was President of the Texas Eagles. Pioneer of "long tail moment and rearward C.G." school of design. Famous for his "Civy Boys" and "Civy Hearse." Started modeling in 1935 by reading the old Bill Barnes thrillers. Has amassed a record of 21 firsts and 16 seconds in F/F gas. Done very well in Flying Scale rubber and ROW gas; active in duration rubber and glider flying. Has held AMA Class C gas record and Class C ROW. Was '48 Western States' Class C Champ. Unmarried; spent 4½ years in Infantry during World War II. Has pilot's license. Considered a mean operator with the camera, Paul has turned out some magnificent air-model pictorial work.

Jim Clem . . . Known by most for his control line exploits, Jim was long die - hard F/F'er. Started building in 1933. Continued with rubber till 1937, when gift engine set him on gas trail. Went to Nats at Chicago in 1941; highlight was help received from Carl Goldberg, which resulted in 15th place for Jim in indoor. Stuck to F/F until '42, when he turned to control line (Jim says he got tired of chasing, and besides, he loved to work on engines). His fame in this category started with a city championship win in 1944, and Southwest Championship '45 and '46. Held Class A Speed record in 1948, made with "Whammy." Has teamed at various times with Maurice Stanglin and Jimmy Dugger. Jim is member of Dallas Gas Model Assoc.; unmarried, is an Aircraft Instrument Technician. Win or not he considers aeromodeling "the world's best hobby."

Edward Lidgard . . . Known best for hard work he did as chairman of 1951 Wakefield Committee. Despite his untiring efforts, which culminated in the team being sent abroad (courtesy of Jim Walker), only one of the team members sent his personal thanks to Ed. Started on the modeling path by Frank Nekimken in 1929; Frank got tired selling Ed ROG's and started him in business for himself. Now packaging engineer for Studebaker. Member of famed Chicago Aeronuts club. Took up big plane flying recently and loves it. Now has his license; says he has a swell instructor—after a flight, they both dig out Wakefield models! Ed was a member of the '49 and '50 Wakefield Teams; once held Ornithopter Record. Designed famous Comet "Sparky." Spent 4½ years in the Air Force. Married; two children.

28 All-Time Favorite MONOGRAM models

Famous for Fun .. Extra Value .. Easy Construction

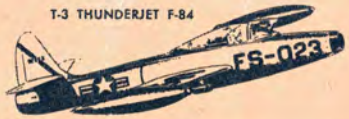
Here is a selection of 28 of the famous Monogram Models . . . SUPERKIT exhibition models, with 16 to 23 plastic parts in each kit . . . SPEEDEE-BILT flying models . . . FIGHTING SHIPS . . . JET POWER RACERS. No matter what your dish is when it comes to model building Monogram gives it to you. Here is BIG VARIETY . . . BIG VALUE . . . and a swell time, with the most fun, making the finest models you ever saw. These are the models so famous for EASY CONSTRUCTION. Even if you have never built a model before you can do a good job the first time with any Monogram Kit. Get Monogram Models at your favorite store. If no dealer in your neighborhood, order from address below. Include 25c extra for prepaid shipment from nearby dealers stock.

Last Chance to Enter Monogram's Letter Writing Contest
415 Prizes — Value Over $1000
Get Details at Your Dealer

T-2 CORSAIR F4U-5

T-1 MUSTANG F-51

T-3 THUNDERJET F-84



NEW! • SENSATIONAL SUPERKITS • BALSA SCALE MODEL AIRPLANES WITH MOLDED PLASTIC PARTS • ONLY 89c

G-14 CORSAIR F4U-5

G-7 CESSNA

G-15 WARHAWK P-40F

G-10 THUNDERJET

G-5 KAYDET

G-12 HELLCAT

G-1 PIPER CUB

SPEEDEE-BILT FLYING MODELS • VARIETY GALORE • EXTRA BIG VALUE • ONLY 85c

G-13 F-86 SABRE JET

G-4 ERCOUPE

G-2 AERONCA

G-8 SPAD

G-9 F-51 MUSTANG

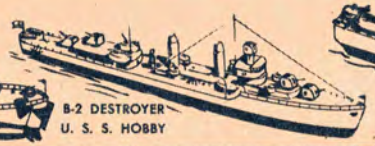
G-3 MONOCOUPE

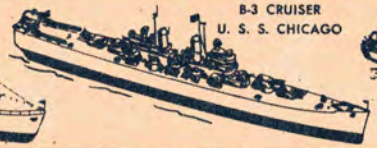
G-11 NAVION

G-6 LONG MIDGET

FEATURING SPEEDEE-BILT PLASTIC PARTS • MONOFOIL WINGS • PREFABRICATED FUSELAGE • DECALS

B-1 L. S. T. 608


B-2 DESTROYER U. S. S. HOBBY


B-3 CRUISER U. S. S. CHICAGO

B-4 BATTLESHIP MISSOURI

B-5 CARRIER U. S. S. SHANGRI-LA

HISTORICAL U. S. FIGHTING SHIPS • CARVED 16 INCH HULLS • SUPER DETAILING

ONLY $1.25

R-1 HOT SHOT 70c

R-2 TERRA-JET $1.00

R-3 MONOJET 85c

R-4 MIDJET 85c

MONOGRAM MODELS, INC.
225
N. RACINE AVE.
CHICAGO, 7

AQUA-JET 60c

FAMOUS JET RACERS • FULLY SHAPED BODIES • RUBBER WHEELS • METAL AXLES

60c to $1.00

latch on to
REAL SPORT

On your mark! Get set for new thrills every day — straight through the year. Swing into the saddle of a Harley-Davidson 125 for action and excitement. If you're looking for real sport, you'll go for motorcycling on this popular, easy-to-ride lightweight. Hustles you to the best fishing and camping spots. Get together with other outdoor fans at gypsy tours, club events, field meets, endurance runs, etc. Get going by seeing your Harley-Davidson dealer. Take a buddy along. Or send 25 cents for literature on the latest models and a copy of the ENTHUSIAST Magazine filled with exciting action pictures and stories.

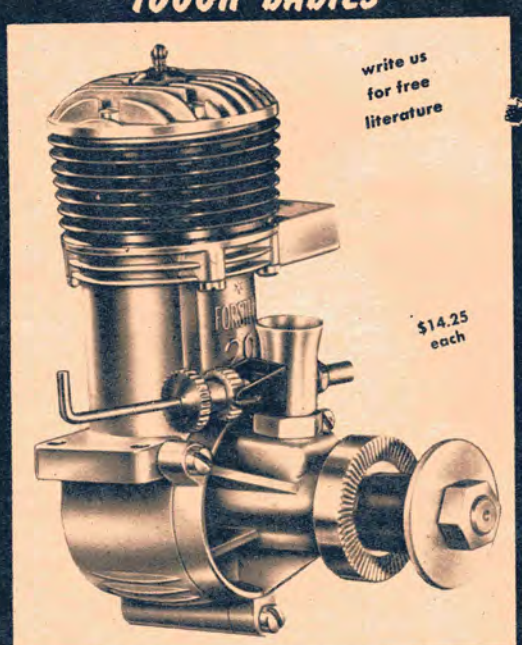
HARLEY-DAVIDSON MOTOR CO.
Dept. AT-5, Milwaukee 1, Wisconsin

Harley-Davidson 125
WITH Tele-Glide® FORK

TWO NEW FRONT ROTARY VALVE
FORSTER TWINS!
TOUGH BABIES

MODEL F-29

NEW
NEW
NEW



MODEL F-31

NEW
NEW
NEW

SEE THEM NOW COMPARE QUALITY THEN BUY THEM

at your hobbycraft dealers

FORSTER BROTHERS, 82 E. Lanark Ave., LANARK, ILL.

Mini-Paagan

(Continued from page 37)

and cuts considerably faster.

The tips are raised the specified amount and spars trimmed for butt fit, and dihedral braces put in; when this is dry, put in center dihedral in the same way.

A very thin coat of sealer or dope is sprayed over exterior surfaces of structure; then sand lightly and cover.

Fuselage Construction

The sides are first cut out from light 1/16" sheet. It is a good idea to sand the sides slightly on a flat surface before assembling. Carefully select light, stiff wood—be sure the sides are matched for grain structure, weight, and stiffness.

Next, lay out and cement the 3/32" x 3/16" (hard) stringers to the bottom inside of the sides, the uprights and the 1/16" sheet nose reinforcement. While these are drying, assemble the wing platform from 1/8" sheet on a 3/16" square, allowing for the dihedral by beveling the platform pieces as they are joined to the 3/16" square. The rear of the fuselage sides are cemented together and clamped with a paper clamp or clothespin. The two main formers are cemented in place, one at the angle shown, and the other perpendicular to the bottom line of the fuselage sides.

Next, pull sides together at the front with the 1/8" sheet firewall backing former 1 in between. Long rubber bands around the nose keep the sides nicely in place while this dries. The wing platform is cemented in place on top of the main formers 2 and 3; be sure to check that the angle to the bottom of the fuselage is exactly the same as it is on the plans—the top of either former may be trimmed to obtain this angle. Be ready with the paper clamps or clothespin and start pulling the sides together with the 1/8" x 1/4" in between the sides at the top—hold in place and cement with the clamps. Balsa sheet pads between the clamps and the fuselage prevent the clamps from mashing in the sides.

Build up the fuselage bottom from light 1/16" sheet as shown and cement in place between the fuselage sides. Put the 3/16" or double 3/32" sheet pylon backbone in place. Very light balsa blocks are used to form the fairing between the cabin-pylon and fuselage. (Pylon backbone fairing.) Rough out the general shape of the outside after fitting the blocks in place alongside pylon backbone. Hollow out inside to within 1/4" to 3/16" of the outside, then cement in place.

The cabin wire is next bent as shown on plans and bound and cemented with thread to the platform centerpiece and to the bottom 3/16" square crosspiece. This wire is important as it takes the strain off the cabin structure and celluloid windshield. Bend the landing gear from 1/16" wire and sandwich between the three firewall pieces as shown on plans. Locate holes for engine, drill and cement thoroughly nuts on back of firewall with engine in place. When dry, remove engine, cut out for nuts on front of fuselage, then cement in place with clamps to front former.

Fill in between sides on top and bottom around nose with 1/16" sheet. Use surgical gauze around firewall to sides and over top and bottom to secure firewall permanently. Carefully check and trim rear of fuselage for tail platform and cement it in place. The "buffer stop" allows the stabilizer to hinge at this point due to the pull of the rubber bands.

Cut out sub-rudder and rudder from medium light quarter-grain sheet and fit and cement in place—check it from front to make sure it is straight to center of fuselage. Use a very light, soft piece of 1/4" square for the fairing between

(Continued on page 56)

KAP-PAK

PRECISION PARTS

½A Needle VALVES

Having engine trouble? Try a change of needle valves. A KAP-PAK needle valve is a precision-built instrument — properly tapered to give you better performance. Knurled knob at end of extension made of aluminum to keep weight down to a minimum. Every needle valve double checked.

Lower Prices

115 for ATWOOD WASP .049.....39c
116 for K & B .020 and .035.....39c
117 for BABY SPITFIRE .045.....39c
118 for SPITZY .049.....
for ROYAL SPITFIRE .065.....49c
119 for OK MOTORS .039, .049, .074, .099....49c

Insist on **KAP-PAK** *Model Accessories*

A & M SUPER PRODUCTS

2208 NORTH MILWAUKEE AVENUE • CHICAGO 47, ILLINOIS

Northrop Students BUILD MINIATURE PULSE JETS

Train Now at NORTHROP For an Exciting AVIATION CAREER

Turn your natural interest in mechanics into a *satisfying, permanent career* in Aviation! Men training *today* at Northrop Aeronautical Institute as Aeronautical Engineers or Aircraft & Engine Mechanics, will design, build, and maintain the jet and rocket aircraft of tomorrow! Begin *YOUR* Northrop training *NOW* and prepare yourself for an *exciting, profitable future!*

Train at NORTHROP!

Northrop Aeronautical Institute is a division of Northrop Aircraft Inc., a company famed for its development of advance design aircraft. At NAI, you study in an atmosphere of real aeronautical achievement. As part of your course, you help design, layout, draw, mock-up, fabricate, test and assemble experimental aircraft! You have a chance to put your creative and mechanical skills to work!

Extra Advantages for You!

In civilian *or* military life, training counts. For example, Northrop Engineering graduates are educationally qualified for Naval Aviation Cadet, Air Force Cadet, or Officer Candidate training. And, it's the trained man who gets the best jobs—advances fastest in important work.

FREE Northrop Catalog

Send today for the big 34-page Northrop catalog that describes the career opportunities in aviation, outlines the courses offered, and shows pictures of the training facilities you will use.

APPROVED FOR VETERANS' TRAINING

Northrop Aeronautical Institute

1533 E. Broadway, Hawthorne
Los Angeles County, Calif.

SEND FOR COMPLETE INFORMATION TODAY

NORTHROP AERONAUTICAL INSTITUTE
1533 E. Broadway, Hawthorne, Los Angeles County, Cal.
Please send me immediately the Northrop catalog, special military information and employment data, and schedule of starting dates of classes. I am interested in:
☐ Aeronautical Engineering ★ Aircraft & Engine Mechanics ☐

Name_____ Age____

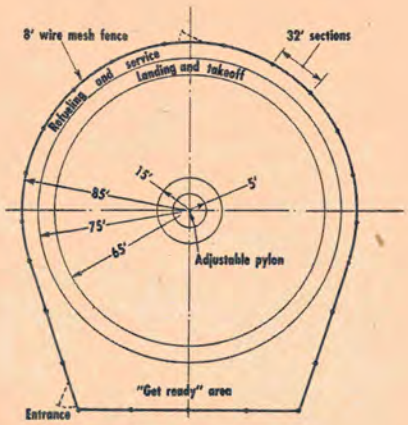
Address_____

City_____ Zone____ State____

5N7 ☐ VETERANS — Check here if you are entitled to training benefits under the G. I. Bill.

Dope Can

News, Views, Comments and Photos from Model Clubs and Enthusiasts in U. S. and Overseas



Pre-fabricated model airport for U-control flying, the first brought to our attention. It affords full protection to spectators, yet lets them get up close to see what is going on. About $2,350, plus installation which is not out of the question for a city-sponsored model flying area. Details from Al Davis, 2516 North Greenview Ave., Chicago 14.

■ As is always the case with this department we have about three times as many items on hand as we can expect to present in the space allotted to us. For that reason we're going to give you a series of brief news flashes and where more information is available we'll tell you the source.

Control Line Endurance . . . record now stands at 3 hours, 29 minutes and 15 seconds. Details are meager, but it's reported that the model engine consumed 7.75 pounds of fuel which is close to a gallon. That flight, incidentally, was a "solo" affair. We'd like to see team records set where flyers could spell each other. Rather than a test of the flyer, we'd prefer to see it handled as a test of the model, especially since it requires a fine-working motor and fuel system.

Every Event Every Day at the Nats... Jim Walker has come up with a new one. He suggests that all events be run every day at the National competition. Although he admits that at first thought this may seem highly involved, he contends it would be much simpler than the way the Nats are run at present—with each event starting and finishing on the same day (exception, radio control).

Jim feels that the R/C set-up should apply to all events. For instance, sez Mr. U/C, it would eliminate standing in line, it would allow expert judging since each set of Judges would stay at their job rather than jump around and become "new experts" every day. Jim feels it would give contestants a better chance to make repairs and subsequent flights. Above all, it would prevent that hurried, frantic attitude that is so detrimental to good flying.

"After all," points out Walker, "modelers come to the Nationals to fly, fly, fly. Every restriction that is placed upon them is harmful and detracts from the overall appeal of the Nationals. They should be granted flying rights from dawn until dark. As matters now stand, an event is scheduled for a certain day and during certain hours of the day. Usually the hours are picked which are almost sure to be the worst part of the day. Usually the early morning and late (*Continued on page* 72)

Top father-and-son team at National Scale Model Exhibit: Andrew and Robert Szabados, both competed in own age groups.

Earl Roth's flying scale copy of Goodyear-built Corsair won Cook Cleland award at Nat'l Scale showing. Home: Cleveland.

DMECO MODELS

"AMERICA'S FINEST"

THE 1ST!

Full fledged R/C trainer

CHECK THESE DESIGN FEATURES.....

1. EXCEPTIONAL STABILITY.
2. INSTANTANEOUS MANEUVERABILITY.
3. CONTROLLED CLIMB.
4. COMPACT SIZE.
5. SIMPLIFIED CONSTRUCTION.
6. USES ANY RADIO INCLUDING "C-S".

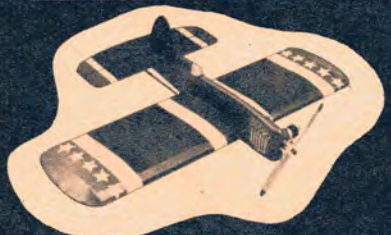
"LIVE WIRE" R/C TRAINER

WITH THE REMOVABLE R/C UNIT!

MOST DMECO MODELS HAVE DURAL LANDING GEARS!

The "All American" Team

WITH "ASSYMETRICAL STABILITY"!



1 THE TRAINER

SIMPLE TO BUILD STABLE AND RUGGED. A FINE BASIC TRAINER .04-.09 ENGINES $1.75

"1/2 A" SPORT & STUNT

A/2 TWIN

FOR SIMPLIFIED TWIN ENGINE FLYING, A REALLY FINE KIT $2.95

Infant WAGON

THE READY TO ASSEMBLE ALL BALSA 1/2A 'STUNTWAGON' COMPLETE $1.95

NEW *Speedwagons!* IMPROVED

WORLD'S FASTEST MODELS

THE '20' CLASS "A" 120MPH*...$3.95
THE '30' CLASS "B" 130MPH*...$4.95
THE '50' CLASS "D" 163MPH ...$5.95

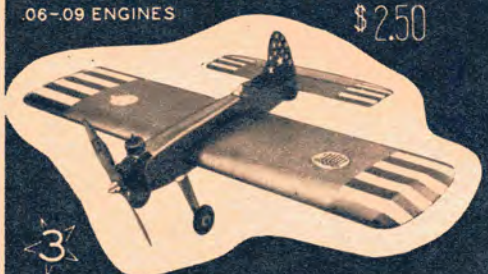
$2.50

SPEEDSTER

HERE IS REAL TEAM RACING FUN, ALL THE FEATURES OF THE BIG ONES TOO! ALTERATIONS FOR SPEED GIVEN .04-.09 ENGINES

2 THE JUNIOR

A SNAPPY MANEUVERABLE MODEL FOR STUNT TRAINING SIMPLE TO BUILD .06-.09 ENGINES $2.50

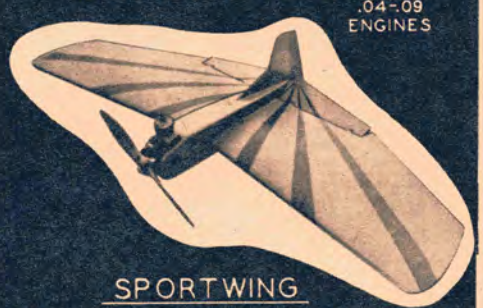


All of these fine dmeco kits are prefabbed from the world's best materials to the most exacting tolerances.

The design is by Harold deBolt one of America's top design-engineers and competitive modelers whose 20 years of experience goes into every kit.

They are complete with GIANT full size plans, instructions, covering materials and all special hardware to make a truly fine model. Fully unconditionally guaranteed against defects in materials and workmanship.

"America's Finest Models"

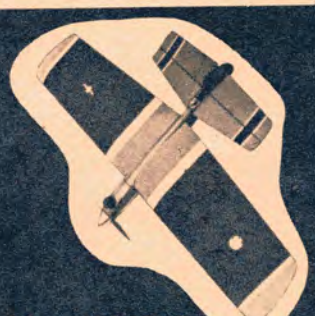


SPORTWING

IDEAL FOR COMBAT & ALL OUT STUNT FEATURES "JIG ASSEMBLY" .19-.29 ENGINES $3.95

3 THE ALL AMERICAN

A THOROUGHBRED STUNT MODEL FOR THE NEW POWERFUL .19 ENGINES $4.95



4 THE SENIOR

THE "STAR OF THEM ALL", A FINE CONTEST STUNT PERFORMER .29-.49 ENGINES $5.95

Stunt WAGONS

STUNT FLYING AT ITS BEST

STUNTWAGON '30' .19-.36 ENGINES $5.95
STUNTWAGON '60' .49-.65 ENGINES $7.95

New BIPE

OVER 25,000 HAVE ALREADY FLOWN. NEW PRE-FAB VERSION FOR STUNT & COMBAT. .19-.36 ENGINES $3.95

The deBolt Model Engineering Co.
Williamsville, N. Y.

PREPARE

NOW

Men 18 to 25

The time to prepare for a profitable, exciting and important career is NOW. Start your training in the field of aviation .. a field that is ever growing in importance and in opportunity for young men with vision. The Dallas Aviation School offers the expert guidance of licensed CAA mechanical instructors who will help open the door of aviation opportunities. At the Dallas Aviation School every phase of aircraft maintenance and repair is taught. Special attention is given to the beginner student to encourage completion .. advancement and placement.

Classes begin each month, so write *today* for information that will start YOU on an exciting and profitable Career in AVIATION.

REGISTRAR, DALLAS AVIATION SCHOOL, LOVE FIELD, DALLAS, TEXAS, Dept. AT951
Please send me your new 1952 catalog and complete information about enrollment.

Name_____ **Age**____
Address_____
☐ **Veteran** ☐ **Non-Veteran**
City_____ **State**____
(Please print all information)

Dallas Aviation School
an affiliate of Aviation Activities Co.
Love Field, Dallas, Texas

(*Continued from page 52*)

the tail platform and the fuselage—"trianglize" it, of course. A 1/16" x ¼" cap strip is cemented to top of fuselage. The rudder is then cemented in place on the stabilizer between the two center ribs. Be sure it is at perfect right angle to leading edge of stabilizer.

The PAA-Load dummy should be cut out of soft material and ballasted with lead or BB shot. It is wedged in place in the fuselage with small balsa wedges. A little hatch in bottom of fuselage allows it to be removed.

Covering and Finishing

After everything has been thoroughly contoured and sanded, a coat of thinned-out sanding sealer is prayed on. (A fly-sprayer is O.K.) It should then be sanded again.

Cover wing, stabilizer, fuselage, and rudder with Jap tissue. The best way of covering with Jap tissue is to cut out a piece oversize and hold where you want it and brush in place with thinner. Rub out wrinkles with saliva on thumb or finger (but on wood only). Don't pull tissue tight, just lay it on even; don't worry too much about small wrinkles, for they will either shrink out or may be rubbed out. After fuselage is covered, give it a coat of 50-50 mixture of dope and sanding sealer. Then several light coats of the same—sanding between each with medium-fine wet or dry sandpaper.

Cut out and cement on celluloid windshield. When dry, mask it off and color-dope and fuel-proof. Mount engine, timers, and dethermalizer details.

After wing and stabilizer are covered, water-shrink and let dry and give them three or four coats of thinned dope. If possible, use Butyrate dope as the last coat. Attach front rubber hooks and rear hold-down wire as shown. (Cement these thoroughly.)

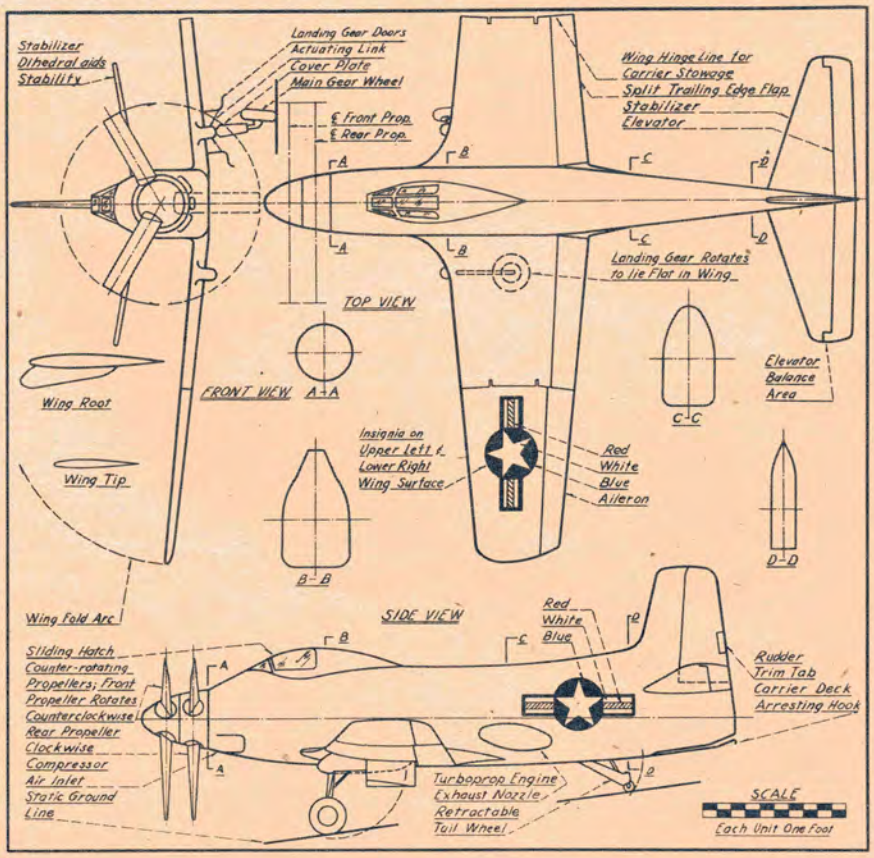
Cut out floating tab from 1/16" mahogany plywood and attach tubing hinge and wire with small squares of silk, and then secure to left wing (from rear). Be sure it hinges freely and that it is not above or below trailing edge.

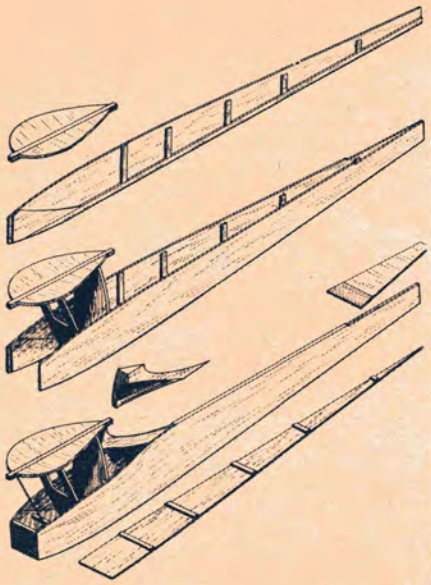
Alignment and Flying

I personally think the success of a model depends upon how carefully certain important things are checked and done—such as wing and stabilizer angle of incidence, engine side thrust, wing and stabilizer alignment, and the securing of alignment positions with keys. Small 1/16" or 1/32" square pine or round dowel pieces cemented securely to the bottom of the wing do the job fine. Dig out slots for them in the wing platform. The front stabilizer key is secured to the platform and a slot cut out for it between the center ribs on the bottom of the stabilizer. As for the rear key, it is secured to the stabilizer trailing edge and a cut-out is made in the platform. A thread or straight edge, measuring between the rear of the fuselage and wing tips, is used to determine the position of the wing before the placement of the keys is determined. Sight from the front to line up rudder in keying stabilizer. Secure nylon thread to rear wires to limit stabilizer pop-up.

When you are sure everything is checked (including balance point) hand-glide to see whether or not it is going to stall or dive. The glide should be straight out, "ballooning" slightly at the end. If it tends to glide right, correct this by warping rudder slightly to left or by raising left side of stabilizer (from rear) or by adding a small dab of modeling clay to floating tab. Small pieces of 1/32" or 1/16" sheet under the leading edge of the wing will correct diving tendencies, and under the trailing edge of the wing, correct stalling. The engine should have about one degree right thrust. If it appears straight, insert 1/32" thick washer or piece of hard wood between the engine and firewall to give it right thrust.

DOUGLAS A2D Skyshark, turboprop Navy attack bomber. Its 5500 hp turbines plus thrust from jet exhaust give it a rocket-like climb and ability to get off carrier deck in little over 300 ft. The Skyshark carries 50% more bomb load than the AD Skyraider.





The first power flight should be made with the engine running about as slow as it will run steady. It should climb to the right one turn in 15 seconds. If it doesn't, give it more right thrust. If the model stalls on the glide, tighten up the turn by using more left warp in rudder, or more clay on floating tab, or raising the stabilizer on the left side (from rear). Also, a thicker piece under the trailing edge of the wing may do the trick. Don't use too much of any of these to obtain turn, a little of each method being preferable. The model should have a fairly tight left glide.

If the glide is a little fast with the PAA-Load dummy, raise leading edge of wing 1/32" at a time till it glides more slowly. This crate flies equally well with or without the dummy; just a bit faster with the guy present in the cockpit. With a hot little Torp or Wasp up front, this ship is a lot of fun.

R/C

(*Continued from page 10*)

he could put radio into a Berkeley P-51 kit job—a controliner.

Charles Machan, Lyons, Ill., can't understand why the article on Mac's Robot in A.T. specified Eveready 413A batteries when the Citizen-Ship instructions call for Burgess U20E's. He thinks they may be a different voltage. Nope, the two types are equivalent—both are 30 V. units. The rheostat in the Robot also puzzles him. It is there just for test purposes in setting the relay contacts. The ship is normally flown with the rheostat at zero resistance.

While we're on this subject of batteries and rheostats, here's a tip: Many users of gas tube receivers employ two 30 V. batteries in series with a variable resistor of about 50,000 ohms. When the tube ages, they get lots more life by cutting out resistance, so that the plate current is always kept to around 1.2 to 1.5 ma. It has been found possible to get two or three times the tube life with this system, over the more usual arrangement of a 45 V. battery and 10,000 ohm resistor. Some tubes are tricky though; they won't work well this way until they have been operated for several hours at the lower voltage.

Ray Gareau, Montreal, Canada, can't get the 120 V. batteries specified for his E.D. transmitter and fears the more usual 135 V. will ruin it. 120 V. is a standard value in England where this outfit is made; the use of 135 V. will do no harm at all, but will give a little more power output.

R/C Contests. May 11, Fairfield, Conn. R/C only at Old Dam Road field. Meet held by Bridgeport Aeronuts. Make entries to Phil D'Ostilio, 47

(*Continued on page 59*)

it's news!
it's non-crazing!
it's non-softening!

new!

PACTRA 'namel for plastic models

15c

unsurpassed for finishing:

At last! A sensational fast-drying PLASTIC FINISH! A paint designed especially for plastic model builders! Laboratory-developed Pactra *'namel* is the completely NEW finish for plastic that was *formulated for plastic!* Will not etch the surface . . . sticks tight . . . covers thoroughly . . . gives a high gloss!

Pactra *'namel* was developed for the Modeler . . . Priced for the Modeler—only 15c for generous sized bottle. Fourteen brilliant colors—including beautiful *Chrome-Silver* and *Gold-Leaf*.

Try this new, important addition to the PACTRA Line of Model Finishes.

PACTRA FORMULATED FOR ½A AND FREE FLIGHT FANS!

NEW *Aero Gloss* HOT FUEL PROOF TRANSPARENT COLOR DOPE

NOW *Aero Gloss* HOT FUEL PROOF DOPE IN NEW METALLIC COLORS

Here's something brand new . . . lightweight, transparent COLOR dope for finishing 1/2 A and Free Flight Planes! *Color Dyes* used instead of paint pigment give *Aero Gloss* transparent finishes greater visibility . . . can be seen up to 1500 feet further! Keep the Judge's eye on YOUR plane *longer* . . . Keep YOUR plane flying longer and *higher* with lightweight Aero Gloss Transparent Color Dope. And, like ALL *Aero Gloss* finishes—A TRUE AIRPLANE DOPE—HOT FUEL PROOF throughout! *Generous 4 oz. JAR ONLY 60c*

For new and different effects use *Aero Gloss Metallics*—Green, Blue, or Maroon. Carefully formulated to give lasting, truly Hot Fuel Proof Performance! See these beautiful new colors at your Hobby Dealer now—try them on the next model you build.

Aero Gloss Metallic Blue, Green or Maroon.

Large 4 oz. Jar ONLY 60c

25c a jar.

have you tried Ray O'lite?

. . . the NEW Fluorescent Paints by Pactra? Brighter . . . more vibrant color—600% to 900% brighter!—better coverage . . . longer lasting. For Hobbyists and Modelers who want "something different." Seven glowing colors

PACTRA CHEMICAL COMPANY
Makers of the Most Complete Line of Model Finishes
1213 NORTH HIGHLAND AVENUE • LOS ANGELES 38, CALIFORNIA

R/C NEWS

Maybe We've Got Something!

With pardonable pride, we report that CITIZEN-SHIP RADIO CONTROL has won **1st, 2nd and 3rd place** in the Canadian Nationals at Toronto last October and repeated the 1-2-3 place performance at the Tangerine Internationals at Orlando, Florida, the day before New Years.

Vern Macnabb

Our CITIZEN-SHIP equipment has been available for about eighteen months and was competing with standard makes of competitive radio control equipment that has been manufactured for many years; yet CITIZEN - SHIP sweeps the field and wins 1-2-3 in the two most recent large scale RC meets.

Special acclaim was accorded our CITIZEN-SHIP equipment by our Canadian friends for its long range and ability to handle the planes on the "cross country" competition. This is no surprise to us. We have controlled planes almost out of sight.

All this in addition to the fact that our CITIZEN-SHIP equipment is the first and only equipment approved for operation on the Citizens Band requiring no "HAM" license, no code or technical examination.

CITIZEN-SHIP Radio Control is factory sealed and adjusted and guaranteed to fly "out of the box." Rugged, dependable. The new standard of RC flying.

Receiver PRICE REDUCED to

RECEIVER Popularity of Citizen-Ship increased production. Was $39.75 **NOW** $29.95

TRANSMITTER completely self contained; factory adjusted, ready to use, less bat'ry $39.75

Citizen-Ship SN escapement	$ 9.95
Good Bros. 4 position escapement	13.50
Citizen-Ship Test Meter	19.95

VERNON C. MacNABB CO.
909 Westfield Blvd., Indianapolis 20, Ind.

CAPC Sgt. Marilyn V. Smith and Pvt. Jan D. Hatley of Austin, Texas, Sqn., work control panel of dead reckoning trainer at Air Force Navigational Training School, Ellington AFB.

Summer encampments this year are beyond expectations. More than 40 Air Force bases have agreed to take Cadets for 2-week training courses. The bases are spread over the whole country, so Cadets will not have far to go.

Girls will be accepted at every one of the bases, with senior CAP women as their supervisors. The quotas as this is written are: 6,500 male Cadets with 1,800 Senior members; 550 girl Cadets with 200 CAP women. Total: 7,050 Cadets and 2,000 supervisors, or 7,050 in all.

Air Force Reserve and WAF officers are encouraged to accept 2-week tours of active duty.

A Reserve-CAP unit has been formed in Washington, D. C., to test a method which may greatly increase the number of CAP Cadet units in the United States under the active management of air veterans.

More Senior instructors are urgently needed to expand the Cadet corps, now less than half its 100,000 goal. Reservists are wanted but the system has made it difficult to collect their credit points needed for promotion and retirement. Besides, they have been like outsiders in the CAP organization rather than part of it.

The new idea is to form units which are Reserve and CAP at the same time and with the advantages of both. In Washington, a Reserve Flight under Capt. Everett W. Lawrence has sworn all its members into CAP and become also a CAP Squadron. The Reservists get their credit points for meetings and can fly aircraft which CAP has although the Reserves are entirely grounded this year. This pioneer unit is forming its own specially selected cadet Squadron.

Whereas in Canada the RCAF Cadets are entirely under Reserve supervision, the CAP in the United States is wholly under the Senior CAP members most of whom are civilians without current Reserve status. The Washington plan, which can be applied in any area under existing regulations, combines the best features of both systems in a very flexible way.

Pretraining of CAP Cadets continues to give preference to those who volunteer for the Air Force. Graduates of the 3-year course, under AF Regulation 39-9, may be inducted in Grade E-2 (Private, First Class), skipping a notch at the very beginning and advancing faster because of their preliminary training background.

Those who are drafted all go in the Army and a small per cent to the Marine Corps as it is now, since the Air Force and Navy are still getting enough volunteers without taking from the draft. The best springboard for air service still is Civil Air Patrol Cadets, and then volunteer.

Doubtful status of universal military training places more stress on volunteer training. CAPC is the only means for those below 18.

Pretraining value is recognized in recent shift of Col. Robert H. Wheat who monitors CAP affairs in Air Force Headquarters, from the Reserve section to the Directorate of Training.

CAP radio people are waiting for the lightweight portable VHF set developed for manufacture by Lear Radio at less than $100 if there are enough orders to start production. This 4-channel voice communications system can be used in planes and autos as well as on the ground.

For longer range communication between State Wings, CAP still has its 2374 kc. frequency which was taken away but soon restored.

Join the Civil Air Patrol—the civilian auxiliary of the U. S. Air Force, Cadets are 14½ to 17; Senior members 18 and over.

C. A. P. NEWS c/o Air Trails
304 East 45th St., New York 17, N. Y.
I'm interested in more information on the CAP and would like to hear from my nearest unit.

Name.....

Address.....

City (and Zone).....

State..... Your Age.....
Air Trails, June '52

(*Continued from page 57*)

Cardinal St., Bridgeport. Entry fee, $1.

May 25, Sepulveda (Calif.) Flood Basin. Pacific Model Aircraft Championships meet for rubber models, gliders, R/C. Details from Robert P. James, 527 East 55th St., Long Beach 5, Calif.

June 14-15, Marietta, Ga. R/C to be flown both days. This is the Southeastern Contest. Write to Forrest Cole, 2279 Chandler Rd., Chamblee, Ga.

August 3, Waynesboro, Pa. This will be a controline meet, except for the radio event. Info from John A. Cotter, Route 3, Waynesboro.

August ??. An International R/C Meet will be held by the I.R.C.M.S. at Woodford, England. Any of you boys care to drop over?

R/C is now being flown on at least three widely separated bands, and it should be possible to make simultaneous official flights on, say, 465 mc., 50 mc. and 27.255 mc. at coming meets (if enough judges can be collected). The usual "flag" system that has been used at meets in the past will have to be modified, if this is done. H. A. Thomas suggests a different colored flag for each band, with the appropriate flag raised only when an official flight is in progress on any band. H. A. feels the frequency should be marked on the flags in big letters, too; probably very wise.

Clubs and People. The Norwood Society of Model Engineers, 163 Oakdale Ave., Dedham, Mass. is heard from through Albert Trefethen. He says he and two others are building Robots and there are two other ships on the way, too. He recently tried to get a Novice License, but the F.C.C. said nothing doing, since Al was at one time a licensed ham. The license ran out some years ago. Through some misunderstanding, he understood the F.C.C. to say that Novices couldn't work R/C on the 27 mc. ham band. Just to set the record straight, Novices can R/C to their heart's content on this band, which runs from 26.960 to 27.230 mc., as long as they use crystal control and 75 watts or less power. Novices are not allowed to operate on the 50-54 mc. ham band.

Eduard Breland, Radio Station WAML, Laurel, Miss., writes that his first radio ship was (and still is) a Robot. Being new to the game, he had great trouble in locating all the parts he needed.

A recent letter from an old friend, George Trammell, Gulfport, Miss., seems to show a note of pessimism. George, who simplified proportional control for us common people, says there appears to be no R/C activity around him at all, and he feels that R/C is on the downgrade. Is there anyone active in his area? Give George a call and cheer him up! Incidentally, he is W5VS, and active on 75 meter phone.

In the February Column, we ran a note from Fran McElwee about an interesting control system he had seen at a recent meet, devised by an Army major whose name he had missed. We soon heard from Frank Schweitzer, L. and S. Hobby Shop, Croyden, Pa., that the ingenious flyer was Major Wm. B. Sydnor Jr., who flies with the very active Bristol Aeromodeleers. The major uses a two-tube receiver with Sigma 4F relay; set and all batteries weigh 10 oz., while the whole plane totals 4 lbs. Another of their group is Carl Fischer, W3KBG (what's the hamming frequency, Carl?). They have given several R/C demonstrations in local schools. R/Cers in that area will be glad to learn that Frank carries quite a stock of R/C essentials in his shop.

Don Santee, 970 Mill St., Salem, Oregon, says there are several radio jobs under way out there. His own ship has logged over ½ hour time so far. He would like to hear from fellows interested in R/C in his vicinity.

Arthur Kubicz, 19309 Revere, Detroit 34, Mich. is a radio ham (W8ICJ) who would like to get into R/C flying. Anyone out there able to help him?

Charles Dobkins, 2218 N. Farola Dr.

(*Continued on page 61*)

SCIENTIFIC Boeing P-26A

A REALISTIC SEMI-SCALE MODEL OF THIS WORLD FAMOUS PURSUIT PLANE

"½ A" U-CONTROL MODEL FOR SMALL BORE ENGINES

Man . . . What Action! What Thrills! It's the world-renowned BOEING P-26A to commemorate the famous Thunderbird and 94th Pursuit Squadrons. Here's an authentic replica of the army's first all metal pursuit plane—designed to get the most out of any small bore engine. The completely prefabbed kit brings to life the beautiful coloring associated with the original. In model form, it's a fast little ship that's highly maneuverable. A terrific control-line stunt and sport flyer. Completely finished kit features super-smooth carved balsa fuselage, wing and tail surfaces and a ready-formed metal drag ring that houses the engine.

SPAN ..... 18 in. WEIGHT ..... 5 oz.
LENGTH ..... 13½ in. ENG. DISP. ..... .039 to .074

AN OUTSTANDING PERFORMER AT A TINY PRICE ONLY $2.95 complete LESS ENGINE

OTHER FAMOUS SCIENTIFIC MODELS

LITTLE SABRE $1.95
Air Trails Blue Ribbon Model. Semi-scale version of the F-86 (Sabre Jet). Modified for peak U-Control flyability. "1/2 A" engines.

BUCKEYE SPEEDBOAT $4.95
Exciting action! The last word in speedboating thrills. Power it with any A or B class engine.

HALF-PINT RACER $2.95
Man . . . what action! Here's a quality powered race car at a tiny price. Operates on any smooth surface. For .020 to .074 engines.

BEECHCRAFT '17' $2.95
Air Trails Blue Ribbon Model. An exact replica of this world-famous biplane. Complete with stamped metal cowl. For .045 to .099 Engines.

RIVIERA $3.50
Full speed ahead for thrills with this popular Chris-Craft runabout. Gets the most out of .020 to .074 engines.

LITTLE MUSTANG $1.95
Air Trails Blue Ribbon Model. An authentic replica of the famous P-51 escort fighter. For .020 to .074 Engines.

ALL KITS COMPLETELY PREFABRICATED

FREE! 1952 Catalog just off the press. Write for your free copy today.

BE SPECIFIC . . . SAY SCIENTIFIC

SCIENTIFIC MODEL AIRPLANE COMPANY
113 A6 MONROE STREET NEWARK 5, N. J.

BUY FROM YOUR DEALER & SAVE 25¢ MAIL CHARGE

SEE THESE SCIENTIFIC MODELS AT YOUR FAVORITE HOBBY SHOP

YOUR BEST BET

MODEL PLANES FOR ½A ENGINES

VECO CONTROLINE

THE SCOUT

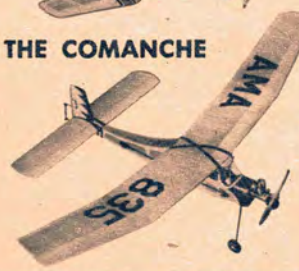
Perfect stunt plane for the beginner. 24" span

FREE-FLIGHT CONTEST TYPE

THE NAVAJO

Pylon Type 36" span

THE COMANCHE



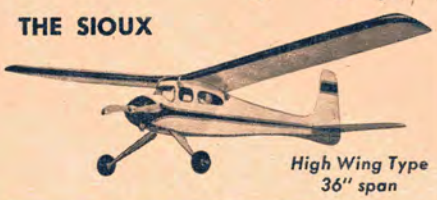
Also PAA load 36" span

VECO SPORT PLANES

THE DAKOTA

For Beginner 24" span

THE SIOUX



High Wing Type 36" span

VECO SCALE MODEL

TAYLOR CUB

"You'll love it!" 35" span

SOLD BY LEADING DEALERS EVERYWHERE

VECO PRODUCTS

Planes Engines

Propellers • Wheels • Accessories

HENRY ENGINEERING CO., Burbank, Calif.

■ This month we will try to present an answer to the question which so many modelers are asking—"What about the Nats?"

The contest this year will be held at the U. S. Naval Air Station, Los Alamitos, California. The station was commissioned in September, 1942, and was originally engaged in elimination flight training for prospective Naval Cadets.

Excellent recreational facilities exist, both on the station and in the surrounding area. The very large Recreation Building houses a bowling alley, poolroom, barbershop, library, Navy Exchange Store, restaurant and an auditorium theater seating 1200 persons. The gymnasium is big and well equipped, the swimming pool is one of the largest in all Southern California.

Captain E. J. Drew, USN, is commanding officer, Commander T. H. James, USNR, is Executive officer while Commander L. B. Riester, USNR, is Command Liaison Officer. In addition to the permanent station crew, there are 27 squadrons of the USNR that report for week-end training. Approximately 900 officers and 2,200 enlisted men from the Southern California area are now obtaining the training necessary to maintain a high state of readiness for any national emergency.

The station is located six miles east of Long Beach and approximately 30 miles southeast of the Los Angeles-Hollywood area. Santa Ana balloon docks are less than ten miles away, providing the best for indoor flying.

The personnel of the base are very proud of their station as well they might be; it is wonderful. For those of you who do manage to eat and sleep while at the Nationals, the roast beef we sampled in the mess hall was just like mother made—really super. They have huge mess halls and kitchens where they can serve over 2,000 per day, so one won't go hungry. The barracks are out of this (*Continued on page 62*)

Capt. Drew, CO at National Meet NAS site.

Los Alamitos base has plenty of flying room according to the West Coast modelers. Note wide expanse of cleared area. Indoor events will be run off in 185 ft. high Santa Ana hangar.

(Continued from page 59)

Dallas, Texas, is another ham who wants to get in on the fun. He used to fly models some years ago, but dropped out for a long time. Has a Robot under way now and plans to use audio tone control. He has it fitted with everything, including working flaps! He is W5LCM and is on 75 meter mobile. How about you Dallas R/C boys giving him a holler?

R/Cers on the Air. New recruits are: Dale Springsted, 837 Eastern Ave., Schenectady 8, N. Y; he's on 40 meter C. W. and would like to make a schedule with any other ham. Then we have Jerry Guter, WCJX, 2901 Oakland St., Ames, Iowa, looking for contacts on 75 meter phone. Still another is M.C. (Chuck) Osborne, who will be on the air as W4NPT by the time this issue is out. He didn't give an address, but said that he will be found on 40 and 80 meter C.W.

W4NPT prefers to make a schedule and we believe this would be the wisest procedure, at least until the first contacts are made. Few of the hams who have written on this have given their frequencies, but of course, many hams use only V.F.O. these days, and may be found on any part of a band. It is also entirely feasible to work cross-band, that is, with each station on a different band. This will enable the Novice licensees to get in on the fun, too; they are restricted to certain spots and bands, and can only use C.W. on most.

Technical Dope. Many readers are confused by what we call "harmonic crystals," which are specified for most R/C transmitters. Well, take operation on 27.255 mc., for example. We must use crystal control there, but a crystal for operation on its fundamental frequency at 27.355 would be thin as paper, and very expensive. However, the crystal makers can produce a rock that is actually cut for a frequency of one third 27.255, or about 9.08 mc.; if this is properly proportioned and mounted, it will oscillate strongly at three times its fundamental, or at just the spot we want.

Such a crystal is called a third harmonic type, and is marked only at the third harmonic, never at the fundamental. When in operation in the correct circuits, only the third harmonic appears in the output—the fundamental does not figure in at all. Some crystals that were not designed for third harmonic use will work fairly well in this manner, but it is safest to get one that is intended for the purpose. One such unit is the Petersen Z5.

While we're mentioning transmitters, we have worked out a very efficient little transmitter for crystal control on the 50 mc. band. It uses a single 3A5 with the first half as a crystal oscillator around 25 mc., and the second half doubling to 50. If anyone is still interested in this band, now that 27 has been opened up, we'll give more data on this.

The French inventor, M. Delanne, who has long espoused the "Delanne configuration" for large planes, has recently had built in France an R/C model with about 6½ ft. span, and equipped with a single cylinder engine. It is apparently fitted only with rudder control, and will be used to study stability and maneuverability. The plane is said to have a range of 1⅓ mile, and has a very scale-like appearance.

Trade News. A new book on modeling by that familiar A.T. contributor, Cal Smith, covers many facets of modeling, but of special interest to the R/C fraternity is a neat cabin plane fitted with radio. There is also a beautiful R/C P.T. boat.

Polk's Hobbies, 314 5th Ave. New York 1, N. Y., advises that they will convert any 6 meter E.D. transmitter and receiver to 27.255 mc. for $12.95. (The $12.50 price we quoted last month was a slip—sorry). This price covers labor and parts, including the needed crystal.

ACCEPT NO SUBSTITUTE

Insist on SPEED-O-LAQ

FLIGHT TESTED

MODEL AIRCRAFT DOPE

Finest Quality at the Price You Want to Pay...

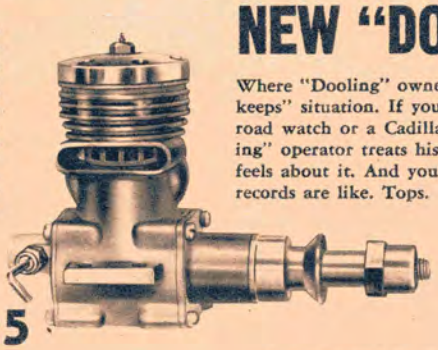
10¢

SPEED-O-LAQ PRODUCTS CO., INC. 2386 Wycliff St., St. Paul 4, Minn.

IT'S ALWAYS "BUYERS—KEEPERS" WITH

SPECS

Bore .800 — Stroke .594 — Bare weight 6½ oz. — Aluminum piston, with rings — Crankshaft mounted with two ball bearings — Molybdenum iron cylinder liners — H. P. ¾ at 17,500 R. P. M.



NEW "DOOLING 29"

Where "Dooling" owners are concerned, it's a "for keeps" situation. If you've seen a man with a railroad watch or a Cadillac, you know how a "Dooling" operator treats his engine. You know how he feels about it. And you have a good idea what his records are like. Tops.

Only $14.95

Regulation Discounts to Jobbers and Dealers

DOOLING BROTHERS

5452 West Adams Boulevard • Los Angeles 16, California

DYNA-JET
PATENTS PENDING
FAMOUS JET MINIATURE GASOLINE ENGINE

THE Super Engine . . .

4¼ lb. Thrust
16 oz. Weight
21 in. Long
2½ in. Diam.

No Wartime Shortages
For Dyna-Jet Owners

- WILL NOT WEAR OUT! No bearings, shafts, rods, pistons, cylinders to wear out or require replacement. Your Dyna-Jet will still run like new after many years of use.
- NO SPECIAL FUELS REQUIRED! Runs best on plain gasoline. Does not use war scarce nitro chemicals or methanol.
- NO PROPELLERS TO REPLACE!

JET PROPULSION! The greatest development in the field of aviation. Be modern, gain enjoyment plus knowledge with the world's finest miniature engine!

SUPER POWERED! More than 4¼ lbs. guaranteed thrust . . . the equivalent of 3 HP at 190 mph with 70% propeller efficiency . . . 1948 AMA speed record of 179.03 mph.

EASIEST STARTING! Most practical and reliable engine ever built. No propellers to break. No ignition system to burden your model. No bearings to wear out. No expensive, special fuels to buy or mix.

MOST ECONOMICAL! Will not wear out. Constant high resale value. Savings on propellers and fuel alone pay the difference in cost between Dyna-Jet and cheaper engines.

OFFICIALLY ACCEPTED! Accepted for contests by AMA, and by modelers the world over.

HOLDS ALL WORLD RECORDS for Jet models.
GUARANTEED! 1. To start easily with hand tire pump. 2. To equal or exceed the advertised thrust. 3. Against defective materials or workmanship.

$35.00 at your Dealers. If he can't supply, order direct. Immediate Delivery!

Shevlin MANUFACTURING COMPANY DAYTON MUNICIPAL AIRPORT • VANDALIA • OHIO

AMERICA'S FIRST NEW RAM-JET HELICOPTER

Available for the first time anywhere!—scale model of the new, exciting "Hiller Hornet" designed for Army, Navy and Civilians

$2.98
—the complete kit with display stand. By mail, add 25¢.

The only book of its kind today!
HELICOPTER GUIDE
by "Les" Morris

Written by one of America's first and foremost helicopter pilots. Everything you want to know about helicopters is contained in this book. Gives detailed, easy-to-understand instructions and diagrams on how to fly a helicopter. Jam-packed with illustrations and facts.
$2.00 per copy
add 10c for postage & handling

Wins Acclaim of Experts for Authentic Detail. The amazing feats of the fabulous "Hiller Hornet" have been front page news since its introduction. Now, for the first time, you can get this model, precision-molded of styrene plastic and scaled to the 10" collector's size. Made in Army olive drab, Navy blue and civilian red with official insignia. Handsomely gift packaged with dramatic 4-color illustration suitable for framing on box cover. A great first for the hobbyist and collector. Order yours today!

Order from your dealer, or write to us direct. Enclose $2.98 for each model in check or M.O. plus 25c for postage and handling —no C.O.D.'s please. Specify Army, Navy or Civilian model.

HELICOPTERS FOR INDUSTRY INC.
111 Cathedral Ave., Hempstead, New York

Two recent articles in the radio press may be of interest to our readers. The February issue of QST carried an article on a proportional control system. It was designed for boats, but could be lightened up for plane use. Then, in the March issue of Radio and Television News, there is an article giving design data and circuits of the 465 mc. Citizen-Ship radio equipment.

HOWARD G. MCENTEE

Western

(*Continued from page 60*)

world, most of them along paved, tree-lined roads, built of wood and stucco, each with a large multi-windowed lounge room for lots of relaxation.

As a good example of how efficient the organization of this base is, they rescued over 300 persons who were marooned during one of the winter storms and provided food and lodging for all of them with no advance notice. Those fellows are sharp. The Security Officer, Lt. S. H. Cherniss, has become so enthusiastic he took in the F.A.S.T. club's regular monthly contest to get an advance on what really goes on at a meet.

The outdoor activities will have plenty of open space, no lakes or high brush to snare models and hide them, just acres and acres of unobstructed flying country. The U-controllers will have more concrete area available to them than ever before. Flying will take place as long as you can see a model—no full-scale aircraft will use this base for the duration of the contest.

Indoor events at nearby Santa Ana, less than 20 minutes away, will find the largest building available since 1934, when Akron was last used. The dock to be used is over 1000 feet long, 300 feet wide and 185 feet to the rafters. The present national record for hand-launched gliders was set here by Bob Dagand and tied recently by Joe Foster; this year will undoubtedly see this broken.

Indoor stick flights in excess of 29 minutes have been made by Frank Cummings; Bill Atwood and Bob Holland have done almost as long. Joe Bilgri has attained over 22 minutes in cabin. Since Indoor flying will be from nine in the morning to nine at night, look for the longest flights ever made in a National contest.

Watch, too, for some of the lesser knowns to perhaps top all these West Coast champs. Don Kennedy has a new job that weighs only 26, as the boys say (twenty-six thousandths of an ounce). Henry Jex, MIT graduate, has opened up the thought channels of the experts with his 2 to 1 long motor stick theory; Bill Thorp has always been up close to the top too. Yes, there will be plenty of competition. *There are no other events scheduled for Indoor Day.* Advance registration will be set up, so you will have plenty of time to fly.

For you fellows who fly combat there will be an event this year. This has proven to be very popular in local events and is hoped to be doubly so at the Nats. Since so many guys who fly stunt also fly team, these events are being set up for separate days. Speed flying will be one day per class with flying scale, carrier deck and jet on Sunday. Some of the competition will be plenty tough. Frank Estrada, the scale man who is really tough, will be on hand with a new ship. Jim Devitt who had the super A-20 at the last Nats will have to be reckoned with, as well as Ray Downs from Tucson. In speed, Church Schuette, Dick Rigney, Jim McElroy, George Mueller as well as the Alameda gang will be plenty tough.

Cliff Potts, Harold Leddington and the entire F.A.S.T. club are about the best in team race; Bob Palmer and Dennis Alford will be hard to beat in stunt.

In rubber, Joe Foster, Manny Andrade, Don Donahue, Lo Salisbury, Andy Faykun are guys who hold their own in any contest. Marv Foreman will be there with his 14-foot glider; Bob Dagand and Jack Block put gliders up plenty high. Wally Short, Elmer Achterberg, John Werts Jr. etc—we could name dozens of gas experts who will be on hand. All in all when the champions are crowned this year they will have beaten the fellows who hold the records. We will really have the champion of champions.

For the news that so many scale fans have anxiously awaited, there will be Half-A flying scale models in the contest this year. The rules will be very much the same as the ones published in this column last December. As can be readily seen there will be an emphasis on scale and detail, so

get to work—somebody has to beat Louis Cullers' Cub.

The fellows who will be running the contest this year are all experienced in the model field. John Bollinger (or "Bollie"), President of the Southern California Model Association, will be contest director. Keith Storey and Yours Truly are assistant C/D's.

Les MacBrayer surely needs no introduction as Director of the U-control events. Dick Shumacker will direct the radio control boys, while we will attempt to follow in the footsteps of Red Hilligas and direct free flight.

Practically all the names in Southern California are working diligently with the Long Beach Exchange Club and the Los Alamitos Naval Air Station to give you the biggest and best yet. Lew Mahieu and John Brodbeck have promised more and larger prizes than ever before—quite a task.

Come on out, fellows, odds are that few of you will ever want to leave California, and plenty of you will be back.

Between storms we took in two contests, one an indoor event, the other the Southwest Regionals in Phoenix. At the indoor contest Joe Foster proved to be the big gun with two firsts. Bob Dagand was doing some real sweating when Joe tied his record on his 8th flight only to throw the wings off on his last attempt. Joe's winning 25:42 in indoor stick was 12 seconds more than Frank Cummings' only flight. Frank spent 99% of his time helping other modelers. Joe Bilgri's 300 square inch job was sure nice, although a little heavy at .091. He promises to have a light one at the Nats. Don Kennedy's .026 ship was by far the lightest, but he arrived too late to complete an official.

The Phoenix contest was plagued by wind, rain and snow. Quent Webster, CD, is to be complimented on accomplishing the well nigh impossible job of completing a contest when more time was used up by rain than by flying weather. The meet was very well attended; Gary Christenson from Salt Lake City traveled the farthest and had beyond a doubt the best finished free flight ships. Speed merchants were many, several fellows from Los Angeles and San Diego attending. We all got together in a bull session at George Mueller's on Saturday night that threatened to last till dawn.

Even with all the wind and rain, times were very creditable since those thermals were all present when the rain stopped. Several ships were lost from sight when the flyers overestimated their dethermalizers. Sweetest victory was Jim Devitt's A-20 scale job over Frank Estrada's Navion. Jim had been trying for two years for this. Jim McElroy got back in the winners' circle with a fast last-minute flight with his D job, his only clocking of the day.

Our El Sobo again topped the rubber-towline line field even though the 48-lb. test towline broke on one flight. El Lobo, the hand-launch design, also won first to help win Open Sweepstakes.

Poor weather, but handled very well.

Cliff Potts has another of those very fast team racers going; although not quite as good as the one which was stolen from him; it really goes.

Frank Cummings' new Wakefields are plenty good—twin tractors, three-minute-plus prop run—look out! Most of the other fellows have return gear jobs, using surplus magnesium gears. Very light and work swell; the cost—15 cents per set.

Fokker's First

(*Continued from page 46*)

Bill of Materials

1 pc. 1/16" x 2" x 24" balsa: ribs, fuselage top & bottom. 1 pc. 3/32" x 2" x 36" balsa: fuselage sides, empennage. 1 pc. 3/32" plywood x 2" x 6": bulkheads, control foundation. 1 pc. 3/16" x ¾" x 24" balsa: trailing edge. 1 pc. ⅜" x ¾" x 24" balsa: leading edge & wing tip. 1 pc. ¼" x 2" x 12" balsa: nose piece & fuselage fairings. 1 pc. 1/16" music wire, 10" lg.: main landing strut. 1 pc. .932" music wire, 18" lg.: aux. landing struts. I sheet light paper: wing covering. 1 1/16" I.D. tubing 1" lg.; control hinge. 1 1/16" dowel, 4" lg.: step & control hinge pin. 5 pcs. crinoline (Band-Aid backing): control hinge and L.G. reinforcing. 1 pc. plywood ⅛" x 1½" x 1½": bulkhead engine mount. Colored dope and sealer, clear dope, thread, fuel proofer, pins, Trim-Film, 2/0—3/0 sandpaper, cement.

FLY AIR TRAILS' NEW BLUE RIBBON WINNER!

F&B's New

WARHAWK

FLYING SCALE TEAM RACING

Flying Model—authentically scaled P40F CURTISS WARHAWK. 32½ in. wing span and 156 square in. Crisply die-cut parts; pre-fabricated; Decals; windshield. Completely detailed, full-sized plans. Shaped and notched leading and trailing edge; formed landing gear. CLASS B-C.

$5.95 (By mail add 25c)

VIXEN
Stunt ship for .030 to .065 engines. Wing area 126 sq. ins.; span 21¼ in. Class. ½A..... $1.95

VAMPIRE
40" span, 9" chord, wing area, 360 sq. in. Ready-built fuselage, Class B-C $4.50

VIKING
51" span, 11" chord, wing area 550 sq. in. Prefabricated fuselage, Class C-D $5.75

F&B HINGES
Invisible, everlasting and they never pull loose.
Per set..... 30c

F-B MODEL AIRCRAFT -- 3240 LARIMER -- DENVER 5, COLO.

1951-52 YEAR BOOK

Compiled by Frank Zaic, now being printed.

- 150 Plans from all over the world. And so much new technical information that it will keep you "happy" for years.
- Order your copy now and get it as soon as it comes from the printer.
- At your dealer or direct ..... $2.50 P.P.

Model Aeronautic Publications Box 333 Sta. D New York 3, N. Y.

For downright pleasure and enjoyment . . .

Keep Your Eye On Dupont Nylon Accessories

Call it the luck of the Irish, or what you will, but Sullivan has done it again!

For five straight months Sullivan research has introduced an outstanding new nylon accessory. Five accessories that give you everything you have asked us for.

These accessories, and the many more we have planned or have in the die-making stage, are only possible in amazing Dupont nylon, the fabulous material that will outwear steel, yet is lighter than aluminum; is fire-resistant, fuel-proof; cannot remain bent out of shape, and has no sharp, abrasive edges to cut or wear flexible cable or other parts.

First the bellcrank and ½A handle were enthusiastically received by thousands of model builders all over the country. Then easy-to-use, safe, positive locking wheel collars were the next Dupont nylon accessory you acclaimed.

But that was just a start. Then came the incomparable snap-on spinner. The spinner that is absolutely foolproof, and shock-absorbing in case of a crack-up. And quick on the heels of the spinner came the out-of-this-world fuel pump . . . a long lasting piston type pump that is truly corrosion-proof . . . designed to do the job and possible only in more efficient, longer lasting nylon. Yes, every nylon accessory becomes more unbelievable than the last.

Yes, nylon is truly a wonder material. But not all wonders are nylon . . . for just wait 'til you see the latest product of our research program . . . an amazingly simple starter. Here's a starter that's easy on the fingers, nerves and pocketbook! Yes, a starter that's simple to operate, easy to use, lightweight (approx. 12 oz.), compact and efficient. It's everything you've ever wanted, yet so simple you'll wonder why everybody didn't think of it ten years ago!

Yes, every one of these accessories is outstanding. And the best part is there are more to come! So keep your eye on Dupont nylon and Sullivan research . . . your partners for better accessories for better flying.

Dupont nylon accessories are available at your favorite dealer, and are made exclusively by Sullivan Products, Phila., Pa.,* manufacturers of PYLON BRAND wire and accessories. advertisement

DeLaMater

(Continued from page 40)

on its first official flight.

It climbed smoothly to within a few feet of the 80-foot roof and began its long cruise. As the minutes passed by, it became obvious that this could well be the best flight of the day. However, when the model was still 40 feet above the floor, and sinking only very slowly, it collided with another ship, terminating the flight abruptly at 19:16. Several of us estimated that had it continued in flight it would have turned in a time of between 23 and 24 minutes.

The collision weakened the boom and it was removed and recemented in place. This threw the model out of trim and it mushed slightly at the start of the second flight, turning in a time of 20:06. The stall was eliminated by removing a bit of wash-in from the left wing, and the third flight was 21:47.5, over 40 seconds ahead of the nearest competition.

By now the clock had reached 7 P.M. and there remained a completely untested cabin model to be flown before the meet terminated at 9 P.M.

The ship was removed from its carrying case, assembled, and after a few short hops was sent off on its first official flight. It took off and climbed smoothly to about 65 feet, cruised around for a time and then slowly descended, reaching the floor at 17:27.4. The model was immediately rewound and started off again. It climbed rather rapidly and after about four minutes was at the girders. Soon it was colliding with a girder every time around, but fortunately it neither hung up nor changed its orbit so as to head for the lower portions of the curved roof.

After being in the air about nine minutes it ceased climbing and settled down to a long cruise and slow descent. When it finally touched the floor, the watch read 19:43.3, nearly four minutes ahead of the nearest competitor. By now it was 8:45 P.M. and rather than risk losing the ship on a third flight, I decided to call it a day.

For those of you who think that the only thrill in modeling comes from watching a hot pylon ship scream upward and then float away in a riser, let me assure you that this afternoon provided as much excitement and pleasure as I have ever experienced in a single day of flying.

By taking first place in the cabin event the model won the Bloomingdale trophy for a second time, while the stick model won the coveted Springfield trophy.

These models are conventional in design and construction and completely reliable, a factor which makes them ideal for contest work. Both models employ the same wing, stabilizer and propeller layouts, and nearly the same rudder. They both employ a system of wing mounting and bracing which combines rigidity with ease of adjustment.

A somewhat unusual feature is the 25% stabilizer set at 0 deg. in combination with the wing set at 4 deg. This force set-up has been found to give a very stable model showing no difficulties when high power is applied at the start of the flight.

The 17/34 propeller is slightly larger than is commonly used on models of this size, but is part of the secret of the success of the airplanes.

The rather short fuselage and motor stick have been found entirely satisfactory for light models using short motors.

The cabin model is somewhat heavier than the stick model, as shown by the following table of weights:

	Stick	Cubin
Wing	0.014 oz.	0.019 oz.
Fuselage and ldg. gear	0.011	0.024
Tail assembly	0.005	0.008
Propeller	0.009	0.011
Total	0.039	0.062

PRESENTING THE

BIGGEST ROUND-UP in the WEST!

• SHIPS • PLANES
• BOATS • ENGINES
• CARS • TOOLS
• KITS • CRAFTS
• RAILROAD SUPPLIES
• HOBBIES

MODEL KITS and SUPPLIES

WESTERN MODEL *Distributors*

LEADERS SINCE 1933

TWO CONVENIENT WESTERN LOCATIONS

LOS ANGELES
1576 West Adams Blvd.
Los Angeles 7, Calif.
Phone: PArkway 2161

OAKLAND
1106 5th Avenue
Oakland 6, Calif.
Phone: TEmplebar 4-9171

"Best Ever" THE ACE

PICK-UP

A HUGGY LITTLE BUGGY . . FAST ON THE PICK-UP!

Simplified • Anyone can Assemble

O.K. Eager Beavers! Here's the kit you asked us to make—a snappy "Pick-up" and the gals go for it, too. Mostly ready shaped parts, easy to build. Buy a kit now—paint it your favorite color and "wow" the gang. See other Ace kits also, at your dealer's store. Add them to your collection, or start one now. It's fun!

ACE "PICK-UP" KIT No. 1R

AT ALL MODEL AND HOBBY SHOPS

KIT COMPLETE 60¢

With very careful selection of wood, it should be possible to build models lighter than these. Heavier ships may be made by increasing the size and weight of the wood somewhat. The 1949 cabin model weighed 0.080 oz. and flew very well. If you change the weight of the model, be sure to keep the weights of the various components in the above ratios so that the strengths of the parts are in proper proportion.

Construction

A great deal has been written about indoor construction so only the highlights need be covered here. Selection of light wood which is firm rather than pithy is of utmost importance. All identical parts such as fuselage longerons and prop and wing spars should be perfectly matched as to weight and strength to avoid uneven bending. This is achieved by cutting the parts from the same sheet of wood.

The stick is bent from quarter-grained wood, which is recognized by its speckled appearance. Before such wood can be bent it must be soaked in hot water for several minutes and then gently rolled around the form. The strong light stick which results is ample repayment for the difficulty in using quarter-grained wood.

In regard to the fuselage, one side is built over the full-size plan and as each diagonal is cut to size, three more like it are made and set aside. A second side is then built and finally the two sides are joined, using the diagonals already cut. By starting at the center and working toward the ends you will be surprised at the way the fuselage practically falls together in perfect alignment.

The boom need not be made from quarter-grained wood. It is bent around a hard balsa form, 13" long and tapering from ⅛" dia. to 3/64" dia.

The wing is built flat, the spars being lightly cemented at the dihedral breaks. After the entire wing is covered with a single sheet of microfilm, the tip dihedral joints are cracked, the tips are propped up the desired amount and the joints are recemented. Finally the center joints are broken and recemented to give the proper dihedral angle. The mounting struts bearing the aluminum clips are then cemented in place.

The wing is mounted on the fuselage and 1/16" square struts are lightly cemented to the front and rear spars about one inch in from the tip dihedral breaks and to the fuselage in order to hold the wing in proper alignment. When the wing is thus jigged the tungsten bracing wires are cemented in place; finally the temporary struts are removed and the wing is completed.

You will note that wire braces are

(*Continued on page* 68)

"283—284—285—ZZ—ZZ—ZZZZ . . ."

Unbeatable COMBAT Thrills!

KIT S-3
SPAN 40"
FOR
A-B-C
ENGINES

Sterling's $2.95

YAK-9

SISTER SHIP TO THE MATCHLESS *MUSTANG!*

AT LAST! THE RYANS ARE IN!

The most talked-about stunt model in years is at your dealer's NOW!

BE SURE YOUR YAK IS BY STERLING!
LOOK FOR MATT KANIA'S PICTURE ON THE BOX!

Here it is . . . the last word in combat stunt flying thrills — Matt Kania's YAK-9 — perfect sister ship to the fighting F-51 Mustang! The aerodynamic force arrangement and the performance of both models is equally sensational. That's why combat stunt flying with the YAK vs. the MUSTANG is a natural. To be sure you get your share of the thrills, be sure you get the STERLING YAK-9! All parts are die-cut or shaped — only the finest materials are used — and decal insignia are included in this outstanding kit! To be sure your YAK is by STERLING, look for Matt Kania's picture on the box!

See These Other Sterling Models	
Monocoupe	$4.95
Howard Pete	5.95
Mr. Mulligan	4.95
The Waco	5.95
Polish Fighter	5.95
SE 5	5.95
Ryan S-T	5.95
The Maverick	1.00
The Hawk	1.50
The Ringmaster	$2.95
F-51 Mustang	2.95
SCALE POWER BOATS	
Richardson	$5.95
Higgins	4.95
Buccaneer	7.95
Sea Maid "20"	2.95
Resorter "20"	3.25

TUBING
Sterline and Sterl-X

Sterling models
1530-34 N. Hancock St. Philadelphia 22, Pa.

Dealers-Railroad and Engine Parts Catalogs FREE

WRITE FOR YOUR COPIES TODAY

If you already have these books include additional copies in your next order. You're welcome to all you can use as a special service from National. 16 page Model Engine Parts Book, with fuel tank and propeller recommendations and 24 page Railroad Parts Book, both illustrated, give name, number and price of all parts in leading manufacturers lines. Many dealers report the use of these catalogs, along with National's Check List help them please customers and make many additional sales. Write today on your letter head please.

National MODEL DISTRIBUTORS
2516 North Greenview Avenue • Chicago 14

CLEVELAND

Tops in Jets!

VOUGHT CUTLASS (ABOVE) — OTHER "SIMPLEX" KITS:

EACH $1

- LOCKHEED F-90
- McDONNELL BANSHEE
- RUSSIAN MIG-15
- THE PIPER CUB
- VOUGHT CORSAIR

— and —

Tops in Scale

1" SCALE

BOEING P-26A (ABOVE) $6.95

GT. LAKES TRAINER.... $5.95

— and —

Tops in Prefab

EACH 59c

THE GREAT "QUICKY" SETS:

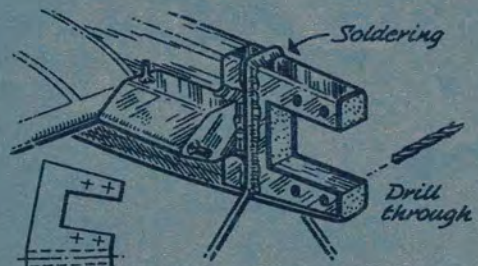
LUSC. SEDAN (ABOVE) • F-86 SABRE • BONANZA • SILVAIRE • PIPER CUB • AERONCA

WHEN ORDERING BY MAIL (If your dealer is out of stock). Minimum order is $2. Include 35c pack-post to all orders up to $3.50 — over $3.50 add 10%. No COD's. Foreign customers add 10% in addition to pack-post charges. Ohioans add 3% Sales Tax. SEND 5c FOR LATEST AIRPLANE CIRCULAR.

CLEVELAND MODEL & SUPPLY CO.

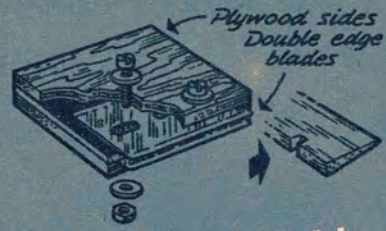
4508F2 Lorain Ave., Cleveland 2, Ohio

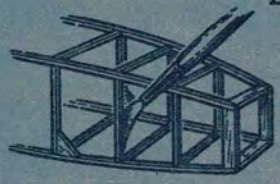
SKETCH BOOK



• Clever brass or tin-plate reinforcement for profile control models ties gear, tank, engine mounting together says Max Mehlburger, Little Rock, Ark.

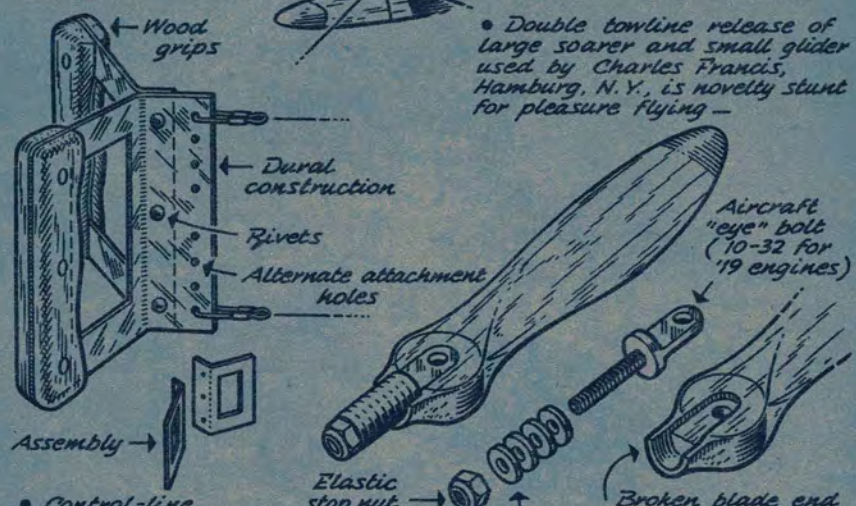
• Notch-cutting tool makes for uniformity in construction: speeds notching of ribs, leading & trailing edges, spars, etc. — Notch width is adjustable... Douglas Joyce, Tonawanda, N.Y.





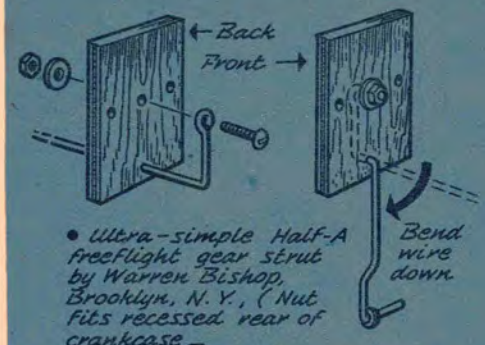
• Rubber lubricant, spattered inside fuselage has serious weakening effect... can be prevented by brushing fuelproofer on frame & covering — Clarence Mather, Lexington, Ill.

• Double towline release of large soarer and small glider used by Charles Francis, Hamburg, N.Y., is novelty stunt for pleasure flying —



• Control-line training handle for "dual" instruction gives feel of flying without crack-ups — Submitted by: James Andrews, Beaumont, Texas; used by his club group —

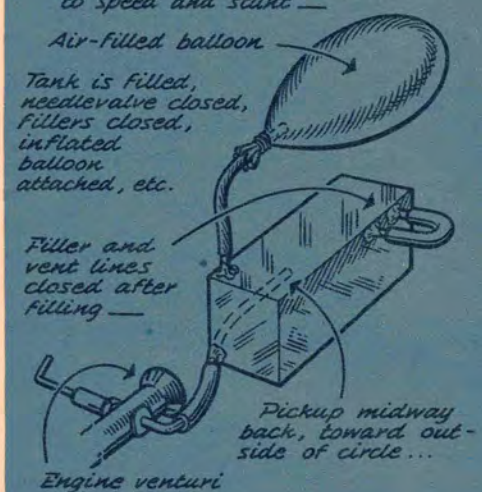
• Lt. Richard L. Smith devised this workmanlike (and extremely safe!) one-blade propeller — Simply adjusted for balance; ideal for freeflight models with one leg folding gear...

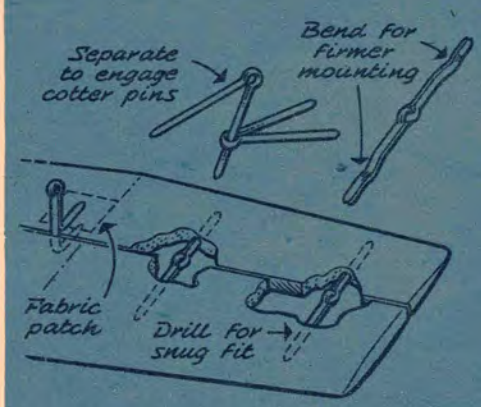


• Ultra-simple Half-A freeflight gear strut by Warren Bishop, Brooklyn, N.Y., (Nut fits recessed rear of crankcase—

Have you developed something new in construction, control, or flying that might interest other modelers? Send a rough sketch—we'll redraw it and pay $5 for each one accepted. Sorry, we cannot acknowledge or send back submissions.

• Novel version of "balloon tank" by Leanord Lee, Long Island City, N.Y., uses regular tank (any shape) and pressure feed from small balloon... adaptable to speed and stunt—


Air-filled balloon
Tank is filled, needlevalve closed, fillers closed, inflated balloon attached, etc.
Filler and vent lines closed after filling—
Pickup midway back, toward outside of circle...
Engine venturi



• Lowly cotter pin affords virtually ready-made hinges and elevator horns for control jobs reports Frank J. Conyns, Seal Beach, Calif. ... Not easily jammed by dope, cement; durable—

No Other Model on Earth

WILL GIVE YOU THE DETAIL OF A DYNA-MO SOLID!

Every little detail visible in the actual airplane, every single item that can be reproduced is given to you.

Jam-packed with metal castings (47 in the P-38 Lightning), these kits are the choice of the best model builders everywhere. See them at your dealers — and, although there is no real comparison, *compare them* with any other kit available.

F8F BEARCAT

$2.75

British Spitfire	$2.75	F4U Corsair	$2.75	P-47 Thunderbolt	$2.95
FW-190 Focke Wulf	2.75	P-51 Mustang	2.75	P-38 Lightning	3.50
P-40 Warhawk	2.75	F6F Hellcat	2.75	ME-109 Messerschmitt	2.75

DYNA-MODEL'S 5 NEW JETS

F-84 Thunderjet	$2.75	F9F Panther	$2.75
MiG-15	2.75	F-80 Shooting Star	2.75
F-86 Sabrejet	$2.75		

Ask your dealer for "Dyna-Mo." If he cannot supply you write us direct, enclosing check or money order plus 25¢ for packing and postage—no C. O. D.'s.

DYNA-MODEL PRODUCTS COMPANY
76 SOUTH STREET, OYSTER BAY, NEW YORK

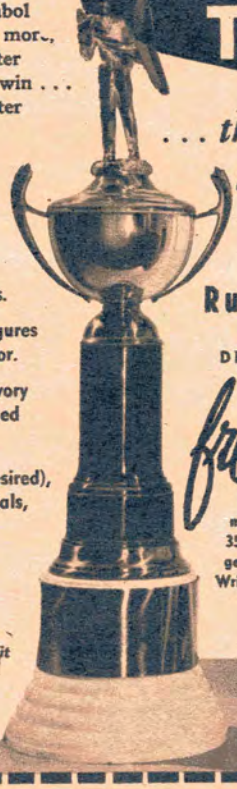
Cash Awards are spent. Merchandise is used or put away — and forgotten. But a Russell Trophy is a lifetime treasure, proudly won, proudly displayed ... an everlasting symbol of achievement. What's more, trophies create a greater incentive to enter and win ... and they stand, year after year, as perpetual advertising. So this year, offer RUSSELL TROPHIES ...

- Especially designed for model aircraft meets.
- Plane and modeler figures finished in rich gold color.
- Bases of beautiful ivory Bakelite or golden grained walnut.
- Special designs (if desired), custom-built for memorials, etc.
- Expert engraving, hand or machine. (Engraving optional.)

Special modeler awards to fit every contest budget! Trophies, $3 to $300. Plaques, $3.50 to $33. Medals, 75c to $15.

Contest Planners: this time... offer TROPHIES

... the award that gives a lifetime of pleasure!



Russell Brothers Products
312 K.P. BLDG.
DES MOINES, IOWA

free Beautiful catalog of modelers' trophies, plaques, medals. Or send 35c for 60-page general catalog. Write today.

AMERICA'S HIT KITS

SKY-LARK $2.00

Sensational half-A freeflight. 31" span.

FLIP-FLAP $3.50

Revolutionary full stunt job. 24" span.

WING DINGUS $2.25

Expert's choice for stunt, sport. 16" span.

PRIMER $1.40

Realistic profile for stunt, sport. 18" span.

WING DING $2.25

Tops for half-A contest flying. 18" span.

S. E.-5 $2.50

Super prefab half-A scale. 17" span.

HOWARD "IKE" $3.00

Howard's famous "Ike" scale Racer. 20" span.

MASTER MODELCRAFT

At your dealers—add 25c per kit by mail
727 Westchester Ave., N. Y. 55, N. Y.

THE SHADOW...

Sponsored every week over the entire Mutual Broadcasting System by Wildroot Company, Inc., makers of Wildroot Cream-Oil. America's most popular hair tonic and Wildroot Liquid Cream Shampoo.

the Shadow

MUTUAL BROADCASTING SYSTEM

(*Continued from page 65*)

used on the bottom of both the leading and trailing edges but only the leading edge is braced from above. This is because the trailing edge never experiences a downward force in flight. The wings are deceptively "floppy" while the models are being handled, but once in the air no trouble is ever experienced.

The propeller is perhaps the most important single part of the airplane, and as such should be constructed with the greatest of care. Four half spars are cut from a 9-inch sheet of 1/16" wood tapered to 1/32" at one end. These are bevel-spliced to give two perfectly straight doubly tapered spars. The exact centers of the spars are pierced with a sharp needle and the spars are slid along with the center post onto a length of fine music wire.

After the positions of the ribs have been marked in ink, the ends of the spars are joined with two pieces of 1/32" square balsa of the length shown on the plan. When you are sure that the spars are perfectly straight they are cemented to the center post. The ribs are now cemented in place, alternating from one side of the prop to the other. Finally the rear spar is cut at an angle at rib number 8, and the tip-leading edge, which has previously been bent to shape around a form, is spliced in place. It is then cemented to the fronts of the ribs and the front spar is cut away just beyond rib number 8 and is cemented to the tip.

Flying

The winning flights were made using a 15-inch loop of 5/64" rubber for the stick model, and a 17-inch loop of ⅛" rubber in the cabin model. These will be good sizes with which to start.

Assemble the model placing the wing clips midway between the ends of the mounts. Adjust the wing by sliding the bracing clips fore and aft until the right wing is flat while the left wing has about 3/16" of wash-in. Put about 500 turns in the model and release. It should climb smoothly in a left circle. If it stalls, move the wing to the rear, re-adjusting the bracing. If it dives, move the wing forward. If the left wing is low, increase its wash-in by moving the left bracing clip forward. If the left wing is high, decrease the wash-in. When the model flies smoothly, you may increase the number of turns.

Finding the proper motor for a given model is the greatest secret in making long flights, especially under low ceilings. A model should land with only a single row of knots in the motor. More turns represent unutilized energy, while fewer turns mean that the model has climbed higher than necessary.

If the ship lands with too many turns, shorten the motor; if it lands dead-stick, use a longer motor. If an adjustment of more than two inches in the motor lengths mentioned is necessary, do not be afraid to go to the next smaller or larger size of rubber. When you are trying for high time use a motor which weighs at least as much as the rest of the model. Don't hesitate to employ larger rubber than recommended above if it is necessary to get the model to land with only a few turns. The 1949 cabin model employed a 19-inch loop of 1/16" *and* a 19-inch loop of 5/64": equivalent to a loop of 9/64" rubber.

When flying under a low ceiling, wind the motor to capacity and then let out enough turns to keep the model from climbing to the roof. This will give you a longer flight than will winding only part way to capacity and leaving the initial burst of power in the motor.

NEXT ISSUE—JULY!!!
DETAILED THREE VIEWS OF RUSSIA'S
MiG-19—La-17—Yak-25

MODELPLANE CONTEST CALENDAR

Meet directors are invited to list forthcoming competitions in this column. Advise Air Trails 90 days in advance to do the most good for your meet. If any area restrictions on entries, be sure to state. Address of contact man is same city as site of meet unless otherwise specified.

May 11—Bridgeport, Conn., Aeronuts' radio contest (tentative). Phil D'Ostilio, 47 Cardinal St., Fairfield, Conn.

May 11—Troy-Schenectady (area), N. Y., Capitol District Championships. Ted Falk, RSE House, Sage Ave., Troy, N. Y.

May 11-18-25—Los Angeles, Cal., Pacific Championships. J. M. Bollinger, 6116 Olive Ave., Long Beach, Calif.

May 18—Willow Grove, Pa., Bucks County Fed. M.A.C. meet (restricted). Frank Horn, 411 E. Newton Rd., Hatboro, Pa.

May 24-25—Crossville, Tenn., Wakefield Eliminations. Roy A. Stone.

May 24-25—Boston, Mass., New England Wakefield Eliminations, E. D. Dolby, 33 Exchange St., Rockland, Mass.

May 25—Chicago, Ill., Midwest Wakefield Eliminations and Nordic A/2 contest. F. B. Purdy, 3511 Jackson St., Bellwood, Ill.

May 25—Gardner, Mass., New England Team Race. J. J. Boisson, 16 Bennett Circle, Lynn, Mass.

May 30—Bristol, Pa., Aeromodelers Flying Circus, C. F. Wells, 1300 Dixon Ave., Croydon, Pa.

May 31-June 1—Cleveland, Ohio, Free Flight Flying Scale Lake Erie GMC. J. W. Grega, 10422 Gay Ave.

June 1—Boston, Mass., Plymouth Dealers' meet. John K. Ross, 23 Lantern Lane, Wellesley Hills, Mass.

June 1—Taft, Cal., Taft M.A.C. records trials. Francis Stewart, 900-21st St., Bakersfield, Cal.

June 8—Lexington, Nebr., State Stunt contest, D. R. Ross.

June 8—Cicero, N. Y., Statewide Schools meet. Harry C. Copeland, 101 Lincoln Ave., Syracuse, N. Y.

June 8—Lorain, Ohio, Youth Center contest. I. R. Bergman, 2214 W. 14th St.

June 8—Cape Girardeau, Mo., Ill.-Mo.-Ky. C/L meet. E. E. Miner, 541 S. Hanover.

June 8—Bethpage, N. Y., Seventh Mirror Model Flying Fair. Ted Clodius, "N. Y. Mirror," 235 E. 45th St., N.Y.C.

June 14-15—Atlanta, Ga., Southeastern Championships. R. H. Elliott, 639 Brookline St., S.W.

June 14-15—Salt Lake City, Utah. "Active Modelers" meet. Norbert Baumgartner, 756 Parkway Ave.

June 15—St. Paul-Minneapolis, Minn., Talent Scout Meet. P. J. Ring, 4150-29th Ave., S., Minneapolis, Minn.

June 15—McMinnville, Ore., Stardusters F/F contest. Robert Kern, 1906 N. Portland Blvd., Portland, Ore.

June 15—Rockford, Ill., Aero Aces free flight meet. H. E. Heminger, 836 Diamond Ct.

June 21-22—Hartford, Conn., "Times"-Plymouth Dealers' meet. "Times," Prospect St.

June 22—Hicksville, L. I., Screamin' Demons Half/A, Flying Scale & Rubber meet. Bob Buragas, 255 Laurel Ave., Arlington, N. J.

June 22—Red Lodge, Mont., Montana-Wyo. Airscrews' meet. C. J. Erck, Box 214.

June 22—Cedar Rapids, Iowa, John Pavlis memorial meet. P. M. Marchal, Jr., 1837-8th Ave., S.W.

June 28-29—Detroit, Mich., State Exchange meet (includes Windsor, Ont.). F. P. Sposite, 9900 E. Jefferson.

June 29—Long Island, N. Y., Gas Monkeys' Fifth Annual. E. V. Roff, 56 Stuart Ave., Malverne, N. Y.

July 4—Peoria, Ill., Central Ill. Model Air Circus. Morgan Baldridge, 327 S. Washington.

July 4—Anchorage, Alaska, Annual meet. R. C. Seigelkoff, Box 959.

July 9-15—Amarillo, AFB, Tex., Air Force World-Wide Championships. Lt. H. A. Vogler, Jr.

July 13—Wilmington, N. C., E. Carolina U/C Championships. W. M. Peck, Jr., 214 Walnut.

July 13—Winston-Salem, N. C., Plymouth Dealers-Skywriters F/F meet. Ed Aldridge, 853 Watson Ave.

July 13—St. Paul, Minn., Plymouth Dealers-Hobby Retailers meet. Harold Queen, Rm 201, 1586 University Ave.

July 13—Brantford, Ont., Kloudbusters F/F, rubber & glider contest. W. H. Allison, 47 Nelson St.

July 13—Montreal, Que., Sleepless Knights' meet. Cliff Morris, 2166 Demaricourt St.

July 13—Johnsville, Pa. (tentative). Phila. Plymouth dealers' qualifications and regional meet. Matt Sullivan, 214 W. Dauphin, Phila. 33.

July 27—Portageville, Mo., Rotary-Plymouth meet. W. C. Kroeger, c/o Dorris Motor Co.

July (last week)—Los Alamitos N.A.S., Cal., National Meet.

Aug. 3—Waynesboro, Pa., Exchange meet. J. A. Otter, Rt. 3.

Aug. 3—Cleveland, Ohio, Lake Erie GMC Half-A free flight meet. J. W. Grega, 10422 Gay Ave.

Aug. 3—Minn. & St. Paul, Minn., A.T.C.H.R. PAA-Load meet. W. H. Billett, 2548 Nicollet Ave., Minn.

Aug. 3—Waynesboro, Pa., Exchange-Plymouth U-Control meet. J. A. Otter, Rt. 3.

Aug. 10—Hamburg, N. Y., Cloud Busters' meet. Mrs. Robert Burdick, 108 Maple Ave.

Aug. 10—Dekalb, Ill., Cloud Dusters' Flying Circus. Dutch Hess, 137½ E. Lincoln.

Aug. 20-25—Detroit, Mich., 6th International Plymouth Model Plane Contest. Contact your nearest Plymouth Dealer.

Aug. 31-Sept. 1—Pawtucket, R. I., 6th All-New England meet. A. C. Bergeron, 55 Ricard St., Seekonk, Mass.

Sept. 1—Far Hills, N. J., Lions Club C/L meet. C. Norman Welsh, Dumont Rd.

Sept. 7—Lumberton, N. C., Prop Snappers contest. R. C. Stone, 1906 Rowland Ave.

Sept. 14—Woonsocket, R. I., Flying Fools Club meet. W. W. Wenclawik, 204 Lincoln.

Sept. 28—Hicksville, L. I., Screamin' Demons 6th Annual meet (second part). Bob Buragas, 225 Laurel Ave., Arlington, N. J.

more thrust per r.p.m.

Tornado

nationally famous

PLASTICOTE

PROPS

"not a plastic . . . . . but a plastic coated wood"

HEAT PROOF

FUEL PROOF

Examination will prove! Run your fingers along a TORNADO prop. Feel the smoothest finish ever developed. Look at the perfect air foil section . . . true pitch and extra thin blades—You'll agree, TORNADO props are engineered to deliver the most *thrust* at minimum *torque* for top performance!

For consistent high quality, ask for TORNADO props at your dealer.

GRISH BROS. • ST. JOHN 1, INDIANA

DON'T DELAY

You'll find your model building a lot easier and a lot more fun if you have one of the new "AT" Model Annuals at your elbow. It's jam-packed with innumerable hints, plans and hot ideas.

Price, 50c in U. S.
60c in Canada
$1 elsewhere.

Don't miss it!

If your local newsstand or hobby dealer is sold out, send correct price to Air Trails, 304 E. 45th St., N. Y. 17, N. Y.

½"A" FLYING SCALE CORSAIR

$2.95 EACH

NAVY CARRIER CRAFT
Redi-Carved Fuselages

HALF "A" PRECISION SCALE—Easy-to-assemble flying-scale model! Complete with carved & hollowed fuselage, cut-to-shape wings, stabs, rudder. All hardware & super-detailed plans. Unexcelled for sight or flight! P-51 MUSTANG in SAME MODEL!—SAME PRICE!

19, 29 or 35 cu. in displ. motors

GUIDED Star

21 Self Aligning Slots

$5.95

Aligns Itself
AS YOU BUILD IT!

435 Sq. inch wing area
24" Fuselage
40" Wing span

ALL AROUND FLYER—with striking advanced stability design! Delivers spectacular stunt performance or pleasurable sport flying for beginner, expert, contestant! "CAN'T-GO-WRONG" assembly kit & plans incorporate the careful, detailed, precise elements which make CONSOLIDATED standard for the field! 21 self-aligning slots, automatically "builds itself!" Complete kit, less engine, includes: die-cut sides, top, bottom, plywood formers, flaps, wing-ribs, side stiffeners. Shaped rudder, stab, elevator, cockpit, turtle deck & landing gear! 40" span, 24" fuselage.

STARLET—scaled-down version of Guided Star featuring the very same advanced stability design, "can't-go-wrong" assembly, perfect finish & spectacular performance. For .039 to .074 engines. Only $2.75

159.23 M.P.H.
HELL RAZOR
MAGNESIUM ALLOY BOTTOM

COOLER RUNNING! LONGER LASTING! Rugged metal bottom is machine-bolted to engine. Metal to metal—1st time in model flying! ½A MODEL $2.00.

CLASS	PRICE	Casting
"A"	$5.95	$2.75
"B"	$6.50	$2.75
"C" & "D"	$6.95	$2.95

Redi-Carved Fuselage
SOLIDS
¼" Scale

- Focke-Wulf 190....$1.25
- Hawker - Typhoon.. 1.25
- Grumman Hellcat.. 1.25
- Jap Zero..... 1.25
- Republic P-47.... 1.25
- N. Amer. P-51.... 1.25
- Boeing B-17..... 1.50
- Lockheed P-38.... 2.00
- Kingfisher 2.00

AT DEALERS! If none near you, order direct enclosing remittance! No C.O.D. service.

Consolidated
Dept. AT-652
3087 Third Avenue, New York 56, N. Y.

SEND FOR FREE!
PROP CHART
PLUG CHART
NEOPRENE TUBING

SEND NAME AND ADDRESS FOR FREE OFFER

TRADE IN YOUR OLD MOTOR ANY CONDITION OR SIZE
Get 25% OFF

Mail us your old motor and get this terrific tradein allowance. Specify motor and deduct 25% from these prices!

Atwood Wasp (FF)	$6.75	Ohlsson 33 Glo	$13.95
Atwood Wasp (UC)	6.50	Ohlsson 29 Marine	14.95
Baby Spitfire	5.45	Ohlsson 60 Glo	13.95
Baby Spitfire P'kge	5.95	O.K. Bantam Glo	9.95
Dooling 25	14.95	O.K. Cub .099	6.95
Forster G. 29 Glo	14.25	O.K. Cub .099 Pkge	7.75
Forster G. 31 Glo	14.25	O.K. Cub .080	4.95
Fox 29	14.95	O.K. Cub .049	5.25
Fox 35	14.95	O.K. Cub .049 Pkge	5.75
Fox 60 Stunt	29.95	O.K. Cub .074	5.95
Infant Torpedo	4.95	O.K. Cub .074 Pkge	6.75
K & B Torpedo .049	5.95	O.K. Cub .049 Kit	4.95
K & B Torp. Jr.	4.95	O.K. Hothead Glo	10.95
K & B Torpedo 19	13.95	O.K. Super 60 Glo	11.95
Mohawk Chief Glo	9.95	Royal Spitfire	7.95
Ohlsson 19 Luxe Glo	11.95	Spitzy	4.45
Ohlsson 23 Rv Deluxe	11.95	Spitzy Senior	5.45
Ohlsson 29 Glo	13.95		

Postage prepaid (add tax in N.Y.C.)
JUST SEND CHECK OR MONEY ORDER.
WE WILL RUSH MOTOR TO YOU.

SID'S HOBBY CENTER
Dept. A, 1701 Boston Road, New York 60, N. Y.

MACH

Here's the story of the man whose name became a number

■ A hot-tempered German physicist who finally made his peace on this earth thirty-five years ago in Munich at the age of seventy-eight would be completely disgusted if he could return to learn why his surname is now in use.

Professor Ernst Mach would find that his fame rested, not on his exhaustive and beloved work on the philosophy of science, but on a common term used to express the speed of aircraft in these jet-propelled times.

The expression is "Mach number," and the pronunciation is "Mock." While the proper phonetics would probably give the nineteenth century scholar no particular pleasure, it would certainly irritate him less than "Mac," or "Match."

The life and career of the distinguished scientist, who wore a beard appropriate to the Austro-Hungarian empire, is less known now than the meaning of the term, Mach number. The question: "What is a Mach number?" is sometimes asked. But it is seldom that anyone inquires: "What is, or was, a Mach?"

The first question may be easier to answer than the second. The Mach number is the ratio of the speed of flight to the speed of sound. Mach number 1 is flight at the speed of sound. Half the speed of sound, for example, is Mach number .5 and a speed of twice that of sound would be Mach number 2. When an airplane has a top speed equal to that of sound, the aircraft is said to be a Mach 1 airplane.

Mach 1, or the speed of sound, is 761 miles an hour, but not always. At this point the aeronautical engineers rub their hands briskly and move in to point out that the speed of sound changes according to the temperature and density of the air. The speed of sound *is* 761 miles an hour at sea level with the temperature at 59 degrees. But the higher an airplane flies, within limits, into the cold thin upper air, the slower sound travels.

The Mach number is important because pilots and designers are much more interested in their airplanes' proximity to the so-called sonic barrier than they are in ground speeds. The sonic barrier, reached when an object attains the speed of sound, consists of air piling ahead of the moving object. Shock waves are formed, and the aircraft is subjected to severe stress. The swept-back wings of jet aircraft provide one way of splitting the sonic barrier.

There were no jet airplanes—in fact no airplanes at all—when Ernst Mach first looked into the ratio between the speed of flow of gas and the speed of

(*Continued on page* 80)

PHOTO CREDIT LIST

Page 22—Twin Navion: Levy & Shipp.
Page 23—Twin Cub: Levy & Shipp.
Page 34—U.L.: James Bohash.
Pages 34-35—C.T.: "Automobile Facts"; C.B.: "Flight."
Page 35—T. & B., R.: NACA.

HAW-KI
HOBBY SUPPLY CO.
WHOLESALE ONLY

ALL NATIONALLY ADVERTISED MAKES

★ MODEL AIRPLANES
★ RACE CARS
★ RAILROAD EQPT.
★ CRAFTS AND TOYS

WRITE
Today on your business letterhead for current catalog.

PROMPT SPEEDY DELIVERY

HAW-KI HOBBY SUPPLY CO.
DEPT. AT-3 523 WEST 4TH
Davenport, Iowa

"AT" Plans—35¢ Each

652A—Fokker Eindecker E.1 World War I U/C flying scale; Bouncing Bertie, semi-scale U/C triplane.

652B—Dennie Davis' Mini-Pazgan payloader and Half-A free flight; Brawner's outdoor record holding rubber cabin; DeLaMater's national indoor cabin and stick winners.

R101—Radio control special! McElwee's Robot; plans for building your own receiver and transmitter for 27 mc; directions for constructing a Beep Box.

552—Half-A free flight scale Curtiss Racer; U/C flying scale Dart Kitten; Reinhardt's Galloping Comedian .29 to .35 stunter.

ATA 521—Fokker Triplane, 20 inch wingspan, control line for .09 engines; B-36 solid model, 14 inch wingspan; Ole Slippery team racer, 30 inch span, .29 engines; Horton IV flying wing scale towline glider, 35 inch wingspan; Little Senator Half-A free flight, 30 inch span; Bienenstein's Mulvihill Trophy winning outdoor rubber stick model, 54 inch span.

ATA 522—North American AT-6 control line flying scale with complete cockpit details, 40 inch span for .32 to .60 engines; Bristol Bullet rubber powered scale biplane, 18 inch span; Dunham's All-American rubber powered cabin model, 59 inch wingspan.

ATA 523—Happy Medium record-holding Free Flight, .29 or .31 engines, 68 inch span; Executive twin $50 Jetex powered all balsa semi-scale, 18 inch wingspan; Double Whammy scale-like stagger wing U/C stunt for .29 to .35 engines, 36 inch span.

452—Don Still's Stuka Stunt model; Thomas-Morse control line flying scale; Hall-Massey speed models.

352—Air Force Champion team racer Chow Hound, .29 engine, 26 inch span; Consolidated PB-2a U/C flying scale for large engines, 56 inch span; Ehling's National Half-A PAA-Load winner, 33 inch span; Grzeszczak's PAA-Cargo free flight for Half-A engines, 40 inch span.

252—Batiri free flight; Everitt's Wakefield; Bonnie Lass Half-A team racer; Combateer combat model; Half-A Helicopter.

152—Art Chester Racer U/C flying scale; Hot Canary jet speed; K. C. Cutie semi-scale F/F; Do'no' Freeflight Half-A.

1251—Bourgeois' Jezebel team racer; Storey-Willard F/F low wing Korker; deBolt's Half-A Twin semi-scale U/C; Stits Junior, C/L scale.

1151—Douglas Mailplane F/F Half-A; F/F Glutton; Half-A Stunt Chum; ROG-ROW combo sport F/F.

1051—Rumpler Taube F/F Half-A; The Fling speed job; Dummy Lifter PAA-Load; Whizz Wagon, Half-A speed.

851—Screamin' Demon speed job; Nordic towline glider; Jetex Opel scale rocket F/F. Tiny Tim tether or U/C Half-A; Pushie, beginner's rubber stick model.

751—Stunt Rocket U/C stunt; Flying Wing free flight; Skylark combo parts.

551—Fleet U/C scale; Balsa glider trio; Clipper Chisai PAA-Load model.

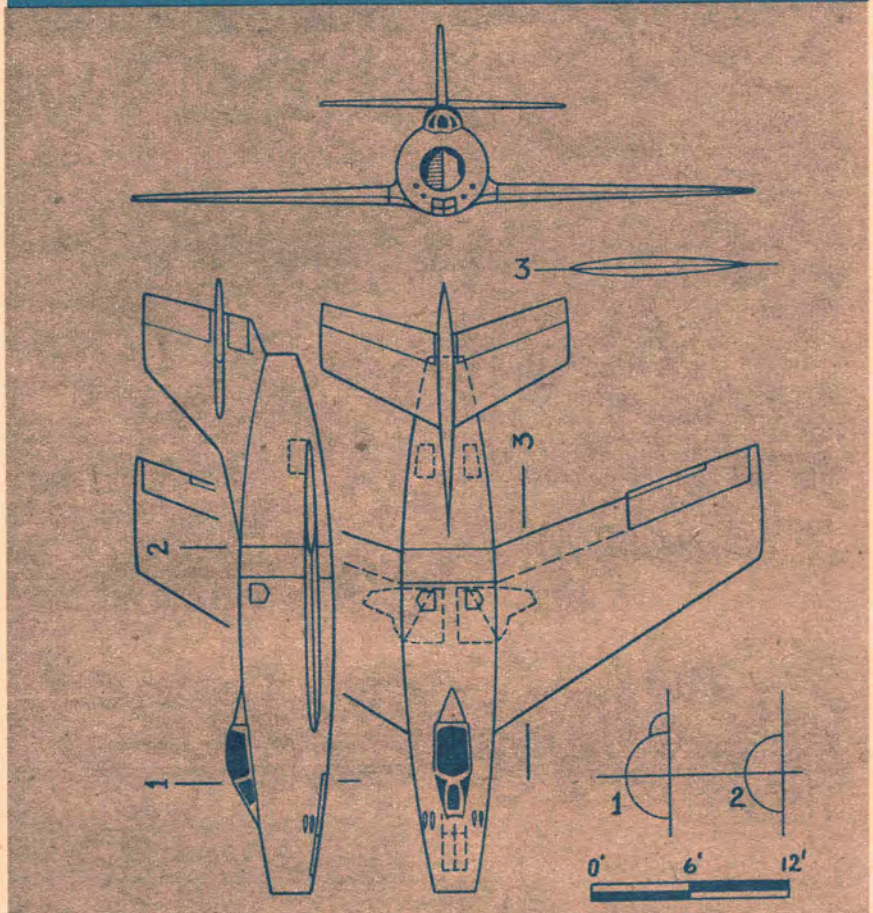
451—AT Interceptor twin U/C; PAA-Cargo Carrier; Whee-38.

351—Matthews' Crowbar PAA-Loader F/F; Beck's Petite Pete A/2'er; Ehling's Wakefield.

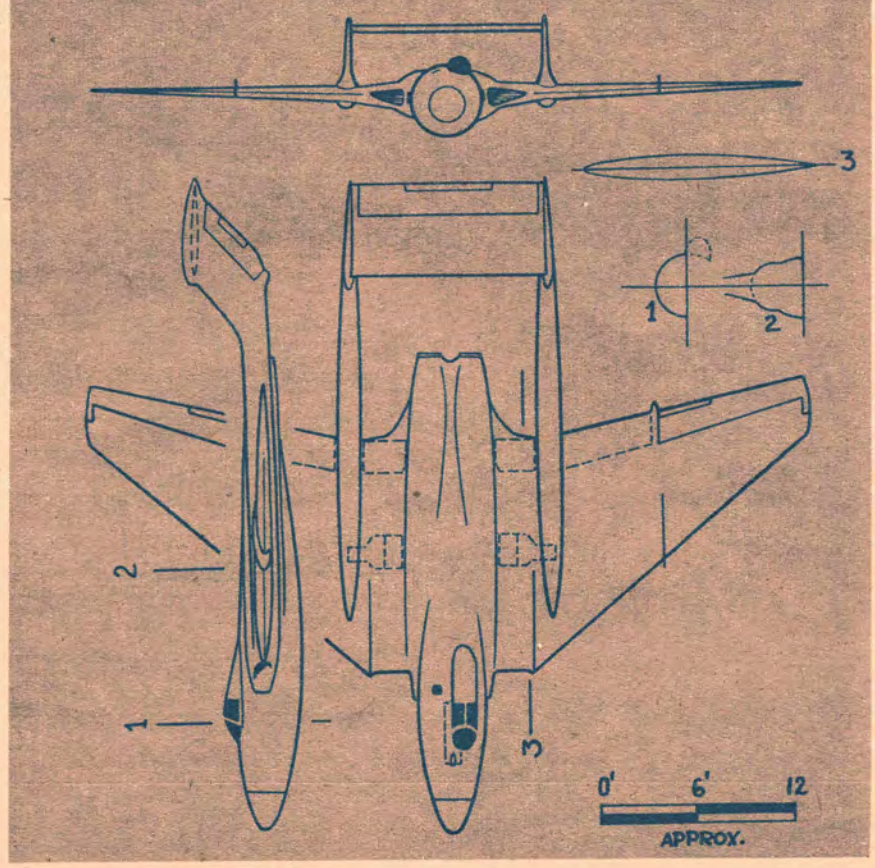
849—Three Vagabonds for powering with rubber, Infant, 23 or OK Cub; Baby Boomer, small free-flight takes Cub or Infant; Air Beat, O&R g.p.-powered sea sled.

Air Trails Plan Service
304 East 45th St., New York 17, N. Y.

DASSAULT MD-452 MYSTERE. French jet fighter which lately was mistakenly quoted by Mutual Security Agency as faster than F-86.



DE HAVILLAND DH 110. British day/ night fighter. Crew of two: pilot in offset cockpit, radar op. in cabin. Two 6,500 lb. thrust RR Avons.



The ELECTRONIC and HOBBYCRAFT Stores INC.
130 W. CHELTEN AVENUE
PHILADELPHIA, 44

AMERICA'S FINEST

1952 AIRPLANES · BOATS · CRAFTS · CATALOG-HANDBOOK

ACCESSORIES

Hot off the press early in June. You can not afford to be without this terrific 60 page catalog. Order your copy today.

ONLY 25¢ NO STAMPS PRINT NAME

WRITE DEPT. 50

BOOKS

S M S AT E AND H means "SUPER MAIL SERVICE"

WRITE DEPT. 50

TOOLS

Model Railroading is fun—and very inexpensive. Our 1952 Model Railroad catalog-handbook lists 84 pages of all gauges.

ONLY 35¢ NO STAMPS PRINT NAME

Minimum Order $1.00 — No C.O.D.'s — No Stamps — Add 25c Handling Charge Under $2.50

MONARCH'S "SPITTIN' IMAGE" control line
SPITFIRE
WINGSPAN 20"
So completely superior in all respects, that words cannot adequately describe it! There is nothing like it at any price! A truly luxurious kit with all de luxe contents — and, perfectly PRE-FABRICATED, in every detail.
$3.95 at your dealer by mail, add 2¢
with SPINNER
Brooklyn 33, N. Y.
FOR ALL HALF "A" ENGINES — .045 to .099
MONARCH MODEL AIRCRAFT CO. Inc.

MiG-19

(Continued from page 27)

flatter fuselage is approximately 37 feet long, and the plane has an overall height of 11 feet 3 inches. These are approximations indicated by our sources. The gross weight has been estimated at between 15,000-16,000 pounds.

Preliminary performance estimates indicate a top speed of 715-725 miles per hour, an initial rate of climb of 7,500 feet per minute, and a service ceiling exceeding 53,000 feet.

The radar installation is an improved *Morgenstern* type with a cruciform end-fire antenna. (The MiG-15 *bis* mounts a dish antenna.) Such equipment is undoubtedly capable of gun-aiming as well as search functions, and this indicates that the boys who fly the new "Super-MiG"-19 may be shooting a lot straighter than their predecessors. (It is no secret, either, that the Reds have come by our A-1C radar gunsights in crashed F-84 Thunderjets and possibly Sabres.)

Dope Can

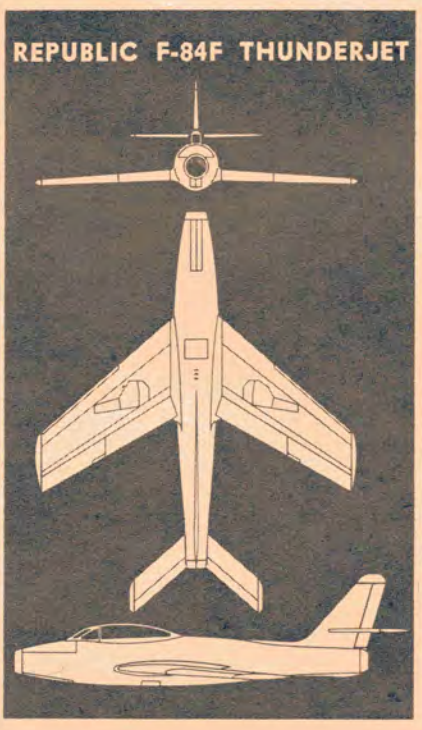
(Continued from page 54)

evening hours are the best for model flying, yet there seems to be a law that these hours shall not be used.

"Only a few times during the last ten years have there been ideal flying conditions throughout the whole Nationals. However, almost every year there have been a few days which would be suitable for certain types of flying. In one year, if you will recall, the indoor event was held during perfect outdoor flying weather and when the outdoor events were scheduled, the weather was terrible."

We certainly applaud the principle behind all this—a better break for the contestant. Whether the sponsors could dig up enough additional judges, watches, recorders, etc., is another matter. We're darn sure, though, that the California gang already hard at work on this year's American Championships will handle the entire deal from the standpoint of the contestant.

Pay Load Scale and Rubber Rules . . . George Gardner of Pan-American has worked out some very good regulations to cover a PAA-Scale event and rubber-powered PAA-Load craft. The flying scale weight-lifting event is confined to Half-A gas models. George tells us that Dallas Sher-



Austin-Craft

TREASURE CHEST COVERED WAGON

No. 1 of a New Series of "Souvenirs of the Pioneers"

½" Scale

You'll be headin' West, Podner, on the Oregon Trail, Podner, when you start building your Treasure Chest Covered Wagon—the wagon that was home to lots of folks for months in the old Pioneer Days. A new de luxe kit complete with everything necessary to build a mighty fine display model! Parts of genuine California Redwood cut to shape, bows and fittings of bent metal, built-up wheels, working brakes, pick, axe, shovel, water barrel, etc.

$3.95

A deluxe kit any Hobbyist can build and every Hobbyist will want to own

at dealers everywhere

AUSTIN Craft
431 So. Victory Blvd., Burbank, Calif.

CLASSIFIED ADVERTISING

Everybody reads the classified. Here is a section hand-tailored for anyone with something to sell or buy.
RATES: Minimum 14 words for only 20c per word
Send remittance with ad to:
AIR TRAILS, 575 Madison Ave.
New York 22, N.Y.

PHOTOGRAPHS

PHOTOS of aircraft from Wright biplane to latest jet. 250,000 photos in stock. Also old aviation books. Send dollar bill for six real photographs of the latest jets, plus the NEW 1952 catalogue. Aeroplane Photo Supply, Box 195-A, Toronto, Canada.

AIRPHOTOS can supply aircraft photographs anytime. From World War I to latest jets. Catalog 1952A and sample photo 25c. Airphotos, Box 117, Jamestown, N. Y.

War Air Photos 1914-1918 real glossy photographs of airplanes and aces of the first World War. Richthofen photographs, and 1914-1918 aviation books. 3c stamp brings price lists. Charles Donald, P.O. Box 186, Union City, N.J.

MOTORS

Used motors. Interesting display items not guaranteed. $1.00 each or 12 for $10.00. All American Model Motor Exchange, Dept. A.C., Box 885, Santa Monica, Calif.

BALSA WOOD

Top grade strips, sheets, planks. Free price list. Dealer's discount. Sig. Mfg. Co., Montezuma, Iowa.

COMBINATION OFFERS

Fox 35 (regular $14.95 value) plus any kit up to $5.95, both for only $16.95. For kits over $5.95, add difference. All American Model Motor Exchange, Dept. A.C., Box 885, Santa Monica, Calif.

BOOKS & MAGAZINES

Read Model Aircraft, Britain's leading hobby magazine. 12 issues only $3.25. All American Model Motor Exchange, Dept. A.C., Box 885, Santa Monica, Calif.

COLLECTORS! Grand new list ready! Old, New, aviation books. Genuine aircraft photographs. Send 25¢ for lists and samples. Airbooks 'AT' Box 958, New Rochelle, N. Y.

man of Pan-Am has worked very hard on these. A copy of each set of rules is yours for the asking. Write George Gardner, Pan-American World Airways System, 28-19 Bridge Plaza North, Long Island City 1, N. Y.

Willing to Write . . . Nothing like having the other fellow's view and exchanging ideas. Here are some correspondents-wanted inquiries: John D. Fleetwood, 18 Central TCE, Ava, Lower Hutt, Wellington, New Zealand, is control fan who stunts, flies speed and team racing. Tommy Rainery, Gorman, Texas, would like to contact an English fan around 14 who is active in the smaller control line (A and A/2) field.

"I've been modeling for about 10 years," says J. Vernon Bailey, 8123 Park Terrace, Houston, Texas, "and I have recently started making and selling models for display purposes to various concerns and airlines. I want to start a collection of World War II aircraft and have decided to build 3/16 inch to the foot scale. I would like to obtain a complete collection of such plans from someone who has a collection of back issues."

Half-A enthusiast is Harry Zientek, 623 Kosciusko St., Manistee, Mich., flying both U/C and free flight. He's 16 and also interested in cameras and radio. Looking for a correspondent. Right now Harry is building a 30-inch Ju 878 Stuka. Anyone got complete details on this ship for him? Roger Stroup, Box 25, Atwater, Ohio, has a 9-foot Taylorcraft model covered with real airplane fabric. He'd like to swap it for a second-hand Half-A free flight radio control outfit.

Hey, fellows, especially you modern racing fans! Edwin E. Hunt, 4679 Calle Tinto, San Diego, Calif., has about 150 glossy prints, 8 by 10 inch size, of the 1947-48-49 Goodyear Races. These were taken by professionals, he says. The entire set is for sale or trade.

New to modeling and keen about rubber powered planes: William Everett, 439 East Union Blvd., Bethlehem, Pa. He'd like to correspond with another novice active in rubber modeling around 10 to 12. M. Moran (let's give full names, men!) is 20, interested in control line speed and stunt, collects and swaps stamps and mags and processes his own films. Wants correspondents. Lives in Australia. The address: 17 Francis St., Bairnsdale, Victoria. Illinois enthusiast wants to contact German fan—George Shetzley, RR 2, Box 430, Chicago Heights, Ill., looking for 18 year old pen pal from Germany who knows English.

Clubs Breaking Out All Over . . . Twenty-eight Ennis, Texas, fans from 7 to 16 have organized the Balsa Butchers under sponsorship of Martin Towb and Par's Model Shop, 401 S. Main St. Richard Hottinger, 38 McKinney Ave., Northport, N. Y., says fans around his neighborhood have lots of enthusiasm for building and flying models but don't coordinate too well when it comes to club work. Sounds like there's a good bunch there to affiliate with some nearby active group. Dick is an advanced rubber flyer—has a Jaguar Wakefield flying off the potato fields of East Northport.

Gardner, Mass., boasts a brand-new flying site at the local airport; this will be the location of the first annual New England States Team Racing Championship meet on May 25. The control line area was provided through the efforts of the mayor and city council, with construction work done by the Board of Public Works. More data can be obtained on the model port from Paul E. Safstrom, 29 Crawford St., Gardner.

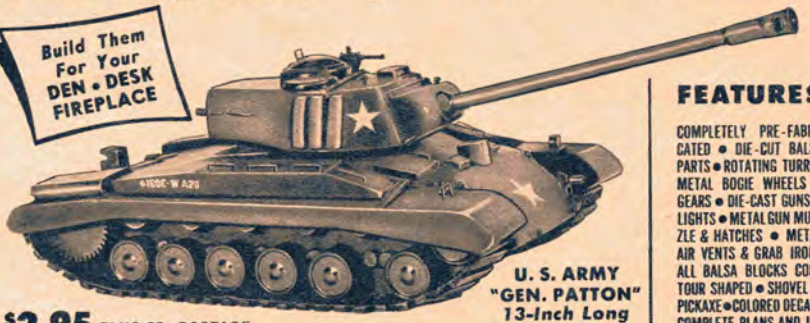
New officers are announced for the Skywriters MAC, Winston-Salem, N. C.: Al Brittain is president, Ed Aldridge is secretary-treasurer. Latter's address is 853 Watson Ave. At the Woodstock, Ontario, YMCA there's an active group that meets under the sponsorship of the Rotary Club. Members are between 8 and 14. For the last three years their instructor has been George Ens. He tells us that club projects this season have included AT's Super Cruiser, Cloud Hound and F-86 solid.

Glastonbury, Conn., has a new club—the Wing Ding MAC. Secretary is Joshua Varat, 110 Harris St. The New York Aeronauts have installed new officers: Sid November, president; Gary Garab, vice president; Frank Santore, treasurer. Publicity chairman is Stanley Barbakoff, 39 Scholes St., Brooklyn 6, who invites all modelers living in New York City and interested in joining an active club to contact him.

PAL Clubs Grow in Minnesota . . . With the state championship meet sponsored by Plymouth Dealers, new rules govern entries in the open class for the Minnesota 6th annual meet near St. Paul on July 13. Entries 21 years or older will be limited to instructors and directors of Plymouth Aero League (PAL) clubs throughout the state. These are the clubs which hold classes in model building Friday nights for boys and girls from 9 to 15. Twenty-six more clubs will be

GIANT 14½-INCH TANKS
Featuring Rotating "Action" Gun Turret

Build Them For Your DEN • DESK FIREPLACE



U. S. ARMY "GEN. PATTON" 13-Inch Long

$2.95 PLUS 25¢ POSTAGE

FEATURES
COMPLETELY PRE-FABRICATED • DIE-CUT BALSA PARTS • ROTATING TURRET METAL BOGIE WHEELS & GEARS • DIE-CAST GUNS • LIGHTS • METAL GUN MUZZLE & HATCHES • METAL AIR VENTS & GRAB IRONS ALL BALSA BLOCKS CONTOUR SHAPED • SHOVEL & PICKAXE • COLORED DECALS COMPLETE PLANS AND INSTRUCTIONS • PACKED IN BEAUTIFUL 2 COLOR BOX

KOREAN BATTLE TANKS

RUSSIAN "MARSHAL STALIN" 14½-Inch Long

$2.95 PLUS 25¢ POSTAGE

BUILD these big scale models of champions of the Korean battlefield. Kits designed in detail from information and photos supplied by U. S. Army Ordnance.

Simple construction. Builds in a few hours. Sensationally beautiful scale models for your den or library.

MERCURY MODEL AIRPLANE CO.
920-T6 UTICA AVENUE • BROOKLYN 3, N. Y.

NOW AVAILABLE AT ALL HOBBY SHOPS
If Out of Stock Order Direct

"YOUR SUPPLIERS—NEVER YOUR COMPETITORS!"

100% WHOLESALE

UNLIMITED OPPORTUNITIES IN AERONAUTICAL ENGINEERING
DEGREE IN 27 MONTHS

Accelerated Course. Personalized, practical instruction. Wind tunnel, structural and dynamometer testing included. Bachelor of Science Degree courses also in Mech., Civil, Elect., Chem., Radio (Telev.) Engineering; Bus. Adm., Acct. Beautiful campus. Well equipped, modern buildings and labs. World-wide enrollment. Established 1884. Prep. courses. Low cost. Placement service. Growing shortage of engineers. Prepare now in shortest possible time for the opportunities ahead. Enter Sept., Jan., March, June. **Write for catalog.**

TRI-STATE COLLEGE
962 College Ave., ANGOLA, INDIANA

EVERYTHING YOU NEED TO FLY FOR FUN—
Motor—Model Kit—Free Accessories Kit All for $6.00 postpaid in U.S.A. (add tax in Calif.)

Here's the bargain buy of the century. Get everything you need today, and start flying. YOUR CHOICE of five motors, any one of a dozen outstanding model kits, PLUS, our FREE accessories kit. All nationally known products. Check these terrific values and order at once.

COMBO #1
CHOICE OF
BERKELEY'S Puddle Jumper, Profile Powerhouse, Mini-Zilch
TESTOR'S Baby Zephyr
SCIENTIFIC'S Little Bipe, Little Devil
SPARTAN'S Olympic
Plus a K & B INFANT ENGINE
All for only $6.00

COMBO #2
CHOICE OF
BERKELEY'S Super Cruiser, Mini-Hogan-34", Senior Puddle Jumper
SCIENTIFIC'S Little Mustang, Little Ace, Little Sabre
F & B's Folly
Plus your choice of either a SPITZ Sr. .045, OK CUB SPITFIRE
All for only $7.50

We stock a Complete line of JETEX, DYNAJET and other JET MOTORS.

BOATS of all types . . . THIMBLEDROME RACING CARS and accessories . . . BALSA, and a thousand other hobby items.

SEND 25c FOR BIG ILLUSTRATED CATALOG, 42 Pages

NOTE NEW ADDRESS: We have moved into larger quarters and expanded our mail order dept.

Crescent MODEL SHOP
5342-A Crenshaw Blvd., Los Angeles 43, Calif.

27 .255 M.C. IS FREE!

POLK'S FOR RADIO CONTROL

Yes, it's FREE! Now that the F.C.C. has allocated 27.255 M.C. for the modeller, POLK'S is leading the parade with E.D. Radio Control equipment that is READY TO INSTALL AND OPERATE. FACTORY TESTED, GUARANTEED crystal controlled on frequency. Nothing to build! All switches, battery plugs, hook-up wire, instructions and even solder included! Just buy and fly!

TRANSMITTER
RECEIVER
ESCAPEMENT
$52.90

Prices Separately
RECEIVER $18.95
ESCAPEMENT $5.95

TRANSMITTER: 3A4 tube giving greater radiation than any other CRYSTAL controlled transmitter. Entirely self-contained including 8 ft. sectional aerial and extension keying switch. Checked and stabilized to conform to new F.C.C. ruling of ± .04% on frequency. Batteries 135 volt & 1.5 volt.

RECEIVER: Matched electronic components makes for 100% performance from the new sub-miniature gas-filled R.C. tube. Variable inductance tuning eliminates difficulties on the field. Small volumetric size achieved by tubular case. Weighs 1¼ ozs. Uses two 22½ batteries and one 1½ volts pen cell.

ESCAPEMENT: 100% reliability due to robust & accurate construction of claw & rotor. Special double winding and current-saving device increases battery life, a feature first developed by E.D. Weighs only ¾ oz. Uses 3 pen cells.

The choice of champions and novices alike, E.D. Radio Control Units has built a proud, unfailing performance reputation the world over!

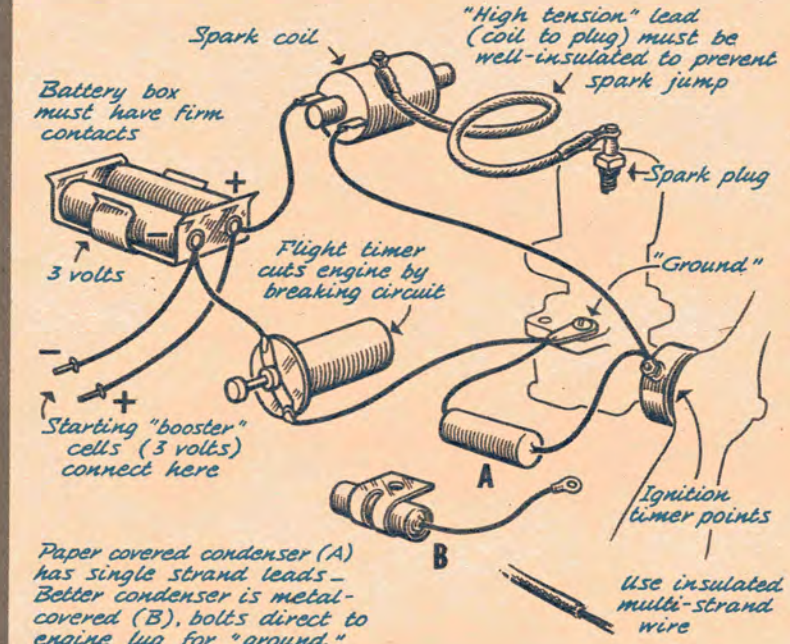
Your best buy for control, experiment or pleasure! (Mail order—send check or M. O.; add 1.00 for postage & packing. No C.O.D.)

POLK'S SPECIAL CONVERSION SERVICE! We will convert any E.D. receiver-transmitter to 27.255 M.C. for $12.95. Includes precision ground crystal. Send INSURED, to POLK'S R.C. Dept. We return postpaid. (Send check or M.O., no C.O.D.)

POLK'S are Radio Control Headquarters! In stock — All leading brands of Radio Control Sets & components.

"How to . . ."

Chief advantage of spark ignition is broad range of running speeds possible. Best wiring system has shortest convenient leads, though not under tension, with firmly soldered connections. Engine, of course, must be equipped with ignition points. Be sure you use a spark plug, not a glow plug.


Spark coil
"High tension" lead (coil to plug) must be well-insulated to prevent spark jump
Battery box must have firm contacts
Spark plug
3 volts
Flight timer cuts engine by breaking circuit
"Ground"
Starting "booster" cells (3 volts) connect here
A
B
Ignition timer points
Paper covered condenser (A) has single strand leads — Better condenser is metal-covered (B), bolts direct to engine lug for "ground"
Use insulated multi-strand wire

opened in St. Paul and Minneapolis alone this year.

There are now openings for 52 more experienced model builders for instructors, according to Mrs. Billie Logan, secretary, PAL Clubs of Minnesota, 1586 University, St. Paul. Minnesota will be represented by 9 flyers in the Plymouth Internationals in Detroit in August. The PAL movement got quite a boost on local television programs which detailed the workings of the different groups and the activities of the members.

Jalopy Races . . . Frank Bushey came to town to boom interest in the June 21 and 22 Plymouth-Hartford, Conn., "Times" competition. One of the highlights of the battle will be Jalopy Races which are catching on like mad in the Nutmeg State. These are a modification of team races, simplified so that everyone can compete on equal terms, yet they're hot enough to keep everyone hopping.

In this event any U/C model can be flown *as long as it qualifies by doing an acceptable wing-over.* The event is run off in the regular 10, 20, 50 and 70 lap fashion. One-ounce tanks are required. Frank says that to the New Britain MAC goes full credit for dreaming up the super-simple team-race idea. He gives great praise to the work of Michael Adajian for putting more flyers, in fact, any U/C flyer, in the racing circle.

Scientific Modelers . . . Usually the Presidential Ballroom of the Statler Hotel in Washington, D. C. is a formal, respectable and fashionable place, not given over to hysteria and hilarious behavior. Status quo went by the boards, though, when a couple of ardent model fans took over the place one evening.

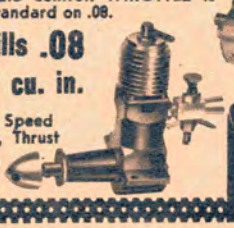
These air-modelers, both winners in the Annual Science Talent Search, were Paul H. Messinger, Los Angeles, and Emmanuel P. Papadakis, Omaha. For their projects in the Westinghouse-Science Service "search" Paul built a wind tunnel to test model airfoils, and Emmanuel rigged up a device to test the thrust of CO_2 cartridges. When the big show was over and the judging of exhibits concluded the pair let loose with CO_2 powered free flight jobs—fortunately flown tethered. Even so they scared the daylights out of the lingering judges and spectators. Emmanuel says the models went like junior size D jobs on the light lines used. We understand the Statler has just

"DIESEL DEPENDABILITY"

MILLS UNIQUE **THROTTLE**

No more dives or costly crashes! Gives full control of plane in free flight, control-line or radio control. THROTTLE is standard on .08.

Mills .08
$13.95 cu. in.



Bore .40, Stroke .64, Speed 10,000 RPM. HP 1/10, Thrust 20 oz. Weight 3½ oz.

Mills .045 cu. in.
$10.95

Bore .33, Stroke .52, Thrust 10 oz., Weight 1¾ oz.

E. D. .065 cu. in. BEE
$11.50

Bore 0.437, Stroke 0.400, speed 7000 RPM, Thrust 12 oz., Weight 2¾ oz. Disc inlet valve with induction pipe through center of fuel tank. Class ½ A.

E.D. 15 cu. in. RACING SPECIAL
$16.95

2¼" high, 3½" long, 1¾" wide. For use as diesel, Glo-plug head available. Develops ½ H.P. at 14,000 RPM. Weight 5 oz.

Bore 0.656, Stroke 0.625 inches. Speed 10,000 R.P.M, Wt. 5¾ ozs. Exceeds thrust of most 5 c. c. engines, 3" high, 1⅞" wide, 4⅛" long.

E.D. .21 cu. in. MARK 4 CLASS B
$19.95

POLK'S MODEL CRAFT HOBBIES, INC.
Dept. AT-652, 314 Fifth Avenue
(at 32nd St.) New York City 1

DEALERS: Rush your order to Polk's at regular trade discounts. Also: enjoy single-shipment wholesale service for ★Airplanes ★Engines ★Supplies ★Accessories ★Railroads ★Ship Models ★Art Supplies ★Books ★Constructo Finished-Parts Ship Models with Finished Displays.

recently recovered its aplomb. Incidentally, our model friends planned to fly the models off the top of the Washington Monument, but reported bad weather prevented this.

Real Recognition for Scale Models! . . . The National Model Plane Exhibit Contest attracted a record 1,394 entries to its 5th annual showing in Cleveland, Ohio—a remarkable accomplishment. To see the models on display and witness the presentation of prizes and awards, more than 20,000 visited the exhibit in the Higbee store auditorium. The more than 100 prizes, including 60 first and second place trophies, 30 gift certificates and 11 special recognition awards, were donated by 27 Greater Cleveland civic and business organizations. Six hundred modelplane kits were given away as door prizes.

There were 5 events: built-up scale, solid scale, powered scale, unconventional or futuristic, and non-scale craftsmanship. Each event was divided into six age groups. Five perpetual trophies were the center of the contest's hottest competition.

The Milton Reynolds award, made to the boy whose entries accumulated the most points, went to 14-year-old Ronald Frew (did he fly yet? yes, he frew). The Arlene Davis trophy given to the outstanding girl contestant went to Trudy Taggart, 6, of Chagrin Falls. Earl Roth of Cleveland won the Cook Cleland trophy for entering the best model of a famous racing plane. Special trophy awards were made to the Sacred Heart of Jesus school for entering the most models, and to the Nathan Hale Junior High school for accumulating the most points.

The National Model Plane Exhibit Contest is sponsored annually by the Cleveland Chamber of Commerce and the Air Foundation as a tribute to the work of Red Feather children's welfare agencies. Other communities interested in inaugurating a similar program can obtain additional details from the Cleveland Community Chest Skyways Program, 1001 Huron Road. Edward R. Sharp, director of the NACA laboratories was chairman of the exhibit.

Other side of the Aussie Picture . . . J. B. Scott, the Honorable Secretary of the Model Flying Club of Australia and East Coast Speed Club sends evidence of the activities of his group and reports that many clubs will not join the Model Aeronautical Association of New South Wales (Australia)—previously mentioned here. The MFCofA&ECSC has a model Navy carrier deck for carrier competitions which was introduced at their Open Championships last September (thanks, says Scott, to "our parent body in America, the Plymouth Aero League").

From this distant point we are unable to determine whether the MFCofA&ECSC or the MAAofNSW(A) is the "official" organization—or indeed, if either is; our main interest is in reporting activities in general regardless of the sponsor. So we welcome news from all groups "Down Under" and hope eventually all can pull together for the most effective type of activity.

PAL Clubs in Detroit . . . Fred Schelter, contest director for the PAL clubs in the Motor Capitol, sends in some very impressive material on the indoor contests and club activities of the various units. In a real understatement, Mr. Schelter says that his associates believe their PAL organization, which consists of 35 clubs meeting in Junior High Schools in the Greater Detroit area, is doing a real job of promoting model building and aviation in general. Not only is it a "real job"—it's a terrific accomplishment. Interest is primarily in boys in 7th, 8th, and 9th grades whose age range is 12 to 15 years. The PALsters start out a new group of model builders each season.

"Our clubs," reports Mr. Schelter, "range in size from 25 to 40 boys and figuring the usual turnover of members we believe that we introduce about 4,000 boys a year to organized model building. Our instructors are all professionally trained Industrial Arts teachers many of whom have taken the course in model building given at Wayne University here in Detroit.

"When our boys leave the 9th grade many of them graduate into the advanced model clubs in the city to continue their building activity. So far this season we have held two indoor contests and are now planning an indoor 'mail' contest. In this, each club will hold its own contest at a specified time using the same type models. The results are mailed in to headquarters and there the winners will be selected. This program in Detroit is sponsored by the Plymouth Dealers of Greater Detroit."

At the last contest the Jasco ROG event was won by Edward Ray of the Mary Lyon school with 66.1 seconds; Ed is 12. Ray York, 13, flying on the same school team, took the combined advanced ROG and Class B event with a time of 159.1 seconds. Frank Slyker, 14, walked off with top honors in the Scale Model competition by amassing 73 points. That was only 1 point better

(*Continued on page 78*)

WEAR This Tested Cimier 10 Days FREE

WORLD FAMED SWISS CIMIER

Originally made as a military watch. NOW, here in America . . . a real he man's watch! For time of day or split-second stop-watch timing. The Genuine Cimier "remembers" results indefinitely, while movement keeps going. Separate dials record minutes and seconds. A true precision timepiece.

GUARANTEED

Guarantee certificate for one FULL YEAR with each watch. SATISFACTION OR MONEY BACK.

Act NOW while we can hold this price. Send check or money-order for $9.95, and we will pay postage. (Or we will ship COD, and you pay the postman $9.95 plus COD charges.)

Only 9.95 Tax Incl.

8 STAR FEATURES

- A sweep-second stop-watch
- Three separate dials
- Tachometer (for speed)
- Telemeter (distance)
- A precision watch
- Shatterproof crystal
- Genuine leather strap
- Radium dial and hands

Same watch in rich gold finish.....$14.95 Incl. Tax

NASSAU CO., Dept. 208
Box 792, G.P.O. New York 1, N. Y.

REMEMBER HIM FOR FATHER'S DAY

Sweeping the Country!

Preferred by Champions.
Contest Performance for Competition—
Dependability for Pleasure Flying.
For U-Control and Free Flight.
WIN with a WASP!!!!

Wasp .049 DISPLACEMENT

By Far the Best in Its Class

ATWOOD MANUFACTURING CO. PICO, CALIF.

NEW 1952 MILITARY MINIATURE CATALOG

CORR'S new catalog of the world's finest MILITARY MINIATURES created by the leading figure artists of the U.S., England, France and the Orient. A special section is devoted to molds, paints, scenic materials, etc. for those who make their own; also unpainted figures and regimental badges. SEND 25c FOR YOUR COPY TODAY. Corr's Ships & Historic Models Catalog 25c

CORR'S
812-818 Ninth St., NW
Dept. AT, Washington 1. D.C.

ADD THE "SPIRIT OF THE WEST" To Your Collection

Ideal MODELS "Easy-to-Assemble" AUTHENTIC KITS

PIONEER TRAIL

COMPLETELY PREFABRICATED WITH METAL, PLASTIC AND DIE CUT PARTS

- No. 501 STAGE COACH
- No. 502 BUCKBOARD
- No. 503 COVERED WAGON

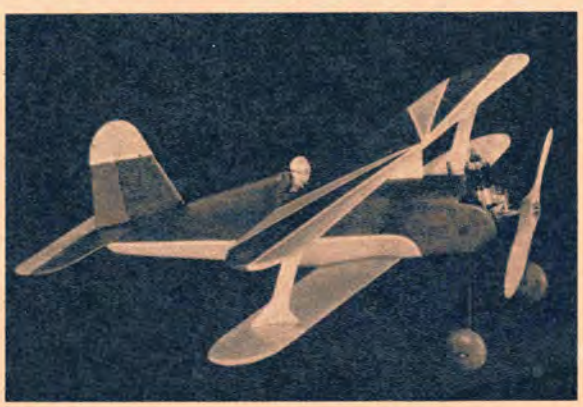
$1.50 EACH

See your Dealer or Order direct. Add 25¢ for postage.

● Illustrated Catalog 10¢

IDEAL MODELS
24-26 WEST 19th ST., NEW YORK 11, N. Y.

SUPER STUNT RUNT $2.25



This SUPER STUNT RUNT built by Bob Bannow of Marinette, Wis., features a brilliant red and grey paint job. The struts and narrow pin stripe are white. Stunts well on its Cub .099 engine.

• • •

Other ½ A SIMPLIKIT Models

Pee Wee Pup	95c
Pee Wee Pursuit	$1.25
Stunt Runt	$1.25
Nomad	$1.25

• • •

JOY PRODUCTS COMPANY
Menominee, Michigan

Did you know?

Mercury Model Airplane Co. uses Hobby Decal's "TRIM-FILM" to trim their outstanding line of model planes?

Here is one of the new "FLYING CIRCUS SERIES"

No. 29

15c

now available at your Hobby Shop.

Send for free "Tips" booklet

HOBBY DECAL SPECIALISTS

314A Elm Street Perth Amboy, N. J.

RADIO CONTROL

Ready soon

BUILD-IT-YOURSELF KITS for the new

27 MEGACYCLE BAND Send 3 ct stamp for literature

ALSO READY NOW OUR NEW

INSTRUCTION MANUAL

with complete circuits, diagrams & directions for flying model airplanes by Radio Control.

Price Postpaid

50 CTS.

Send for Free Catalogue.

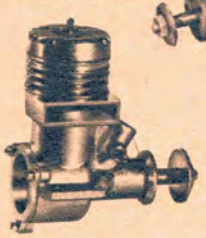
RADIO CONTROL HEADQUARTERS

Belmar, New Jersey

FOX 59

HP — 1+, WT — 10½ oz.

WORLD'S FINEST FOR STUNT AND FREE FLIGHT



FOX 35

HP — ½+, WT — 6 oz.

FIRST — 1950 AND 1951 NATIONALS

FOX for . . .

- EASIER STARTING
- SMOOTHER, STEADIER RUNNING
- MORE POWER — LESS WEIGHT

ARNOLD & FOX ENGINEERING CO.

7401 VARNA AVE., NORTH HOLLYWOOD, CALIF.

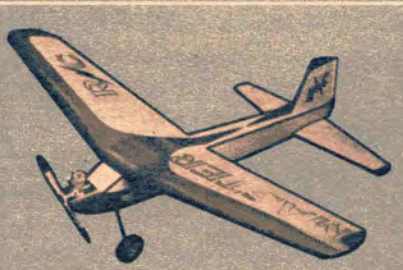
SHOWCASE

TRY YOUR FAVORITE HOBBY SHOP FOR ITEMS PRESENTED HERE. ALL DATA CHECKED CAREFULLY, BUT IS SUBJECT TO CHANGE

Jim Walker's famous ready to fly Firebaby now features supercharged Royal Spitfire engine. Jim modified Royal Spit to give supercharged performance. Model plus motor would ordinarily be $10.45; packaged deal ready to go sells for $8.95. Span 19 in.; total weight with powerplant (fuel-proofed), 3 oz.

Companion model to its combat Mustang: Sterling's new Yak-9 Russian fighter in profile form. Spans 40 in., takes A to C engines. Price $2.95. You can bet you'll see these in the combat circles. A Matt Kania design, Yak is completely prefabbed. All stressed members die-cut from plywood for strength.

COMBAT CRAFT



JASCO'S R/C

Developed to fly in both windy and calm weather, the R/C Master is Jasco's $9.95 entry in field of radio control. Nylon covered, 3.5 lb. job has wingspan of 49 in. Ribs and bulkheads die-cut. Features easily accessible radio compartment, adjustable wing location, removable stabilizer . . . Good!

When they say roll out the barrel, surprise them with this old-time beer wagon, authentic model of pine and balsa with molded plastic wheels by Frontier. $1.50 kit includes turned wooden barrels. Outfit specializes in early Western model kits. All are fine for mantlepiece, den and for gifts.

WOTTA WAGON!

Latest from Model Shipways is 1833 U. S. Revenue Cutter "Roger B. Taney," from a popular class of schooners. Kit is 5/32 in. to foot scale, giving overall length of 19¼ in. Hull machine carved hardwood. Complete kit $12.50, includes all castings, brass, cordage. Firm has 32-page catalog, 25¢

CONTEST CRAFT CO. • Riverdale, Md.
Manufacturers of the World's Finest Model Airplanes

½A PAA Load

BIG LIFT "JR."

Fast Climbing & Flat Gliding

FEATURED CONTENTS
DIE CUT RIBS – VISO TANK
DURAL LANDING GEAR
"PAA" MAN – SKYSAIL
DETAILED PLANS & INSTRUCTIONS

ONLY $2.50

CLIMBS LIKE A ROCKET
GLIDES LIKE A BIRD

CONTENTS
DIE CUT RIBS
VISO TANK
SHAPED FUSELAGE, PYLON, TIPS, ETC.
DETAILED PLANS AND INSTRUCTIONS

$1.95

"THIN MAN"
32" WINGSPAN
for .04 to .09 Engines
"The Aristocrat of the Skies"

CONTEST CRAFT CO. • Riverdale, Md.

At Last a Dependable Smoke Screen For MODEL PLANES

DELUXE SMOKE TRAIL

Now you can get more fun out of flying with the first dependable and colorful smoke screen.

Easy to attach to any model—beautiful color orange smoke. Lasts one minute and a half.

Available at your dealer. Special rates to jobbers and clubs.

Be the first to have more fun flying combat and stunt and lay your own smoke screen.

Special note to free flighters: This bright orange smoke will enable you to locate your model quickly, saving time and the loss of your plane. You can use Great Western Smoke Trails to determine ground thermals at contests. Leaves long lasting layer of colorful orange smoke.

FOR MORE FUN IN FLYING, GET GREAT WESTERN SMOKE TRAIL TODAY.

GREAT WESTERN MFG. CO., INC.
Route 10, Box 257-A, Fort Worth, Texas, Market 4948

12 beautiful power boat construction kits —21" to 33½" length. $2.95 to $9.75. Write for free literature on boats, motors, fittings. At all hobby stores. Chris-Craft, Owens, Harbor, Vinyard, Colonial. Large boat construction from factory plans. U. S. A. and Armed Services only.

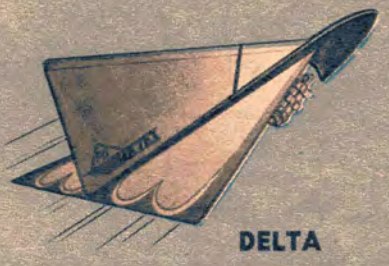
DUMAS PRODUCTS
2347 Aviation Highway, Tucson, Arizona
World's Largest Builder of Motor Boat Models

NAVAJO

A star in the Veco stable of F/F contest models is Henry Engineering's Navajo kit. With wingspan of 36 in. and total area of 160 sq. in., model takes engines from .035 to .074 cu. in. displacement. Design by Tommy Protheroe; engineered for production by Hi Johnson. All the major parts are die-cut.

COPTER GUIDE

"Helicopter Guide" by Les Morris, one of America's first and foremost 'copter pilots, tells you about everything you would want to know about rotary wing aircraft. Gives easy to understand instructions and diagrams on how to fly a full-size helicopter. Packed with "inside" facts. Sells for $2.

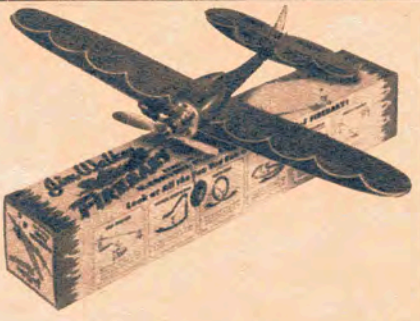


DELTA

This delta-wing flyer is Jetex P-13, so named because it closely follows design and aerodynamics of rocket craft designed by Dr. A. M. Lippisch. Power is Jetex 50 engine. Price without motor, 60¢. Span is 9 in.; length 10 in. Total weight with engine and fuel, ..75 oz. Die-cut parts, engine mount.

AT ANNUAL Available By Mail

Hope you've ordered your personal copy of Air Trails Model Annual for 1952. For first time it's available by mail from Air Trails, 304 E. 45th St., New York 17, N. Y. Price 50¢ to those in U.S. and Possessions; 60¢ in Canada; $1 anywhere else. Reserve your copy right now by sending remittance.



Jim Walker FIREBABY

Buy it ready to fly, complete with flying lines and full instructions for flying and stunting. Wing span is 19 in., weight with motor, 3 oz. All parts are finished, painted and fuel-proofed. Just slip them together, bolt on wing and motor, "gas up" and you're ready to take off!

Complete with motor.....$7.50
Also available without motor for.....$2.50

A-J AIRCRAFT CO.
1166 N. E. 31st Ave. Portland 12, Oregon

Frontier EARLY WESTERN MODEL KITS

IN THE RED AND YELLOW BOXES!

MADE IN THE WEST

TOP BUGGY

It was a big occasion when ma and pa headed for town in this speedy vehicle...for shopping or church or an old-fashioned "hoe-down." You'll want this authentic Frontier model, made of pine and balsa with molded plastic wheels, for your very own.

$1.25

SEE OUR COMPLETE LINE OF WESTERN KITS AT YOUR FAVORITE DEALER

SMALLSTER AUTO KITS

AUTHENTIC MINIATURES OF CARS OF BYGONE DAYS

GRANDFATHER'S PRIDE OF YESTERYEAR . . . FOR YOUR PLEASURE TODAY!

NOW! . . . FACTORY DIRECT TO YOU PRICES

To celebrate our Anniversary, we are making this Introductory Offer at factory-to-you prices for a limited time.

ALL KITS NOW ONLY $1.50 POST PAID

SAVE UP TO $1.45 Per Kit

LIMITED TIME!

(A) EMF 1909 3-in-oner, wheelbase 6¼".
(B) 1904 Cadillac, wheelbase 4½".
(C) 1905 Reo, 4 passenger runabout, wheelbase 5".
(D) 1905 White Steamer, wheelbase 5 13/16".
(E) 1909 Hupmobile runabout, wheelbase 5⅜".
(F) 1909 EMF 30 Racer, wheelbase 6¼".
(G) 1908 Baker Electric, wheelbase 5".

Antique auto kits designed for easy step-by-step construction, contain precision die-cut wood and card parts. Completely prefabricated, kits have realistic details on all plastic parts.

ORDER TODAY DIRECT FROM

FADOR MANUFACTURING CORP.
ELMIRA, N. Y.

(Continued from page 75)

than his fellow modeler from East Detroit Junior High school, Michaels Williams.

Short Notes . . . Lots of model builders, but no organization was the trouble in Shreveport, La. So recently the Shreveport Model Aeronautics Club was formed. All types of model flying are represented with radio control enjoying real popularity as up to 12 R/C jobs turn out. Flying is at the new municipal airport (now under construction) on Sunday afternoons. Ray Bedingfield is the group's president. You can reach him at 537 Radcliff Ave.

FOR YOUR INFORMATION

1952 Summer edition of America's Hobby Center 128-page two-color catalog now ready. Pictures and descriptions of more than 10,000 model items, including engines, planes, boats, cars and accessories. Complete list of replacement parts for popular engines and a series of articles covering modelplane building and flying. Catalog costs 25c from America's Hobby Center, Inc., 156 West 22nd St., New York 11, N. Y.

Scientific's 1952 line is completely illustrated in new folder. Items include airplanes, boats and race cars. Copy free. Write to Scientific Model Airplane Co., 113C Monroe St., Newark 5, N. J.

Ninety pages of model airplane items are offered by Jimmy's Variety & Sales, 3106 E. Osborne Ave., Tampa 5, Fla. Unusual in that it is made up exclusively of manufacturer's literature. Price is 50c, deductible from any order.

The Aero Bugs MAC of Dover, Ohio, is a new club going full blast under the sponsorship of the Kiwanis Club. There are 45 members active largely as the result of training courses run for beginners of 10 or more. Harry A. Seibert, secretary, says the outfit wants to obtain films for club showing. He'd like to hear from anyone able to loan out same—his address is 214 Poplar St.

B. Westberg, Nostravagen 6, Glostrop, Gbg 8, Sweden, offers to supply information on the Swedish Air Force to Terry Wilson of Nashville, Tenn., or to anyone else who is interested. Unclassified material—naturally. He is a worker in the SAF at the station near Golhenburg, 27 and an ardent modeler.

"AT" Forum

(Continued from page 38)

• You could build an AA version of the Skyraider AD-2 by doubling the size of the magazine plans. This will give you a model of 26 inches span. Use the bigger AA engines such as .074 or .099 for a model this size. Wings could be solid ¼ inch sheet, fuselage sides 1/16 inch sheet with formers spaced about 2 inches apart.

Dornier X . . . Would you please tell me what happened to Germany's 12-engine flying boat, the Dornier X?

Sydney Jammes, Jr., Port St. Joe, Fla.

• The last we heard of the Do.X it was in a museum in Germany. This was before the war.

R/C for Model Boat . . . Would you please send me any information regarding plans for building a radio control unit for a model boat.

Billy Soltin, Houston, Tex.

• We suggest you write to Control Research, P.O. Box 9, Hampton, Virginia, for their book on construction of simple R/C receiver and transmitter. Might also find

AERONAUTICAL UNIVERSITY

The aircraft industry urgently needs trained personnel. Here is YOUR opportunity for a rewarding and interesting future. Study Aeronautical Engineering, Engineering Drafting, Airplane and Engine Mechanics (approved by C.A.A.).

Outstanding faculty, modern equipment. Part-time employment. Free placement service. Big demand for graduates. 23rd year. Founded by Curtiss-Wright. Write for free bulletin and "Opportunities in Aviation."

AERONAUTICAL UNIVERSITY
Dept. 93, 1905 Prairie Avenue, Chicago 16, Illinois

NEW ENGLAND DEALERS:

to meet your customer's desires . . . call NEW ENGLAND'S NO. 1 SUPPLIERS!

A COMPLETE SOURCE FOR ALL YOUR MODEL AND HOBBY NEEDS.

Serving New England Dealers for 20 Years with Fast and Dependable Service

We Stock All Leading Lines of:

MODEL AIRPLANES
MODEL RAILROADS
MODEL RACE CARS
MODEL SHIPS & BOATS
MOTORS & ACCESSORIES
ALL CRAFT ITEMS

NORTHEAST Hobby Distributors
87 HIGH STREET • BOSTON, MASS

BY **ENTERPRISE**

SORRY! In the March issue of A. T. on Page 60, we mixed up the prices of the "Champion 36" and "Towline-Terror". CORRECTED PRICES APPEAR BELOW—

"TOWLINE-TERROR"
28" Span Glider
Ready to Assemble
$1.00 Plus 20¢ by mail

"CHAMPION 36"
36" Span Free-Flight
.045 to .09 Engines
$2.50 plus 20¢ by mail

ENTERPRISE
MODEL AIRCRAFT & SUPPLY CO., INC.
DEPT. AT-62
5107 AVE. D, BROOKLYN 3, N. Y.

WE DELIVER FASTER

DEALERS HOBBY SUPPLY
OTTUMWA, IOWA

A complete line of fast selling products made by leading nationally-known organizations!

MODEL AIRPLANES
CRAFTS

Merchandise that sells — delivered faster! Write today on your letterhead for our big new 1952 Model Airplanes and Crafts Catalog!

100% WHOLESALE

Write today!

DEALERS HOBBY SUPPLY
P. O. Box 594 A8
OTTUMWA, IOWA

ACME BRASS TANKS CHOICE OF CHAMPIONS

Type "B" Type "C"

85¢
A True Wedge Stunt Tank 1½", 2¼" or 3" Long

75¢
Team Racing Scale-Sport-Speed ½ oz. or 1 oz.

ALL BRASS TANKS—NO PLATING
• Acme Tanks are air tested under water
• Acme Tanks are complete with mounting bracket
• Acme Tanks are guaranteed
• Acme Tanks are inside and outside soldered
• Acme Tanks are made of hard brass
Acme Tanks Sold at All Leading Hobby Shops
Illustrated Circulars Free on Request

ACME MODEL ENGINEERING CO.
8120-7th Avenue Brooklyn 9, N. Y.

Buy Where You Find
THIS SEAL

IT ASSURES YOU THE BEST AND NEWEST . . . *plus FRIENDLY SERVICE*

AIR TRAILS Hobby Shop Directory

Model Builders! Here's a listing of the nation's leading hobby shops. You'll want to file it away—and when you're in the neighborhood, drop in and browse around. They're expecting you.

NEW YORK—BROOKLYN HEADQUARTERS!
Everything for model airplane builders. Accessories our specialty. Engines, parts and service. Everything in Air Trails.
PARK HOBBY CENTER
8120 Seventh Ave. Shore Rd. 5-2972

OHIO—DAYTON
Convince yourself; Since 1928, folks traveled many miles to shop our mammoth stock; Open Sunday
GOOD'S HOBBY SHOP
1729 N. Main St. Taylor 5578

CALIFORNIA—LOS ANGELES
Nationally advertised model planes, boats, trains, kits and supplies Weekdays and Mon.-Wed.-Fri. Eves.
PICO MODEL CO.
2540 W. Pico Blvd. DUnkirk 7-5894

MASSACHUSETTS—CAMBRIDGE
Model planes, motors, railroads, ships and accessories. 9 to 6 daily and Thurs., Sat. evenings.
CROSBY'S HOBBY CENTRE
1704A Mass. Ave. KI 7-4389

NEW YORK—BROOKLYN
Aeroplanes—Engines—Supplies All Gauges Model Railroad Equipment, Gargraves Trackage. Repairs—Layouts Handicrafts 10:00 A.M.—9:00 P.M.
WALDELL HOBBIES
1622 Newkirk Avenue Ulster 9-0048

OKLAHOMA—OKLAHOMA CITY
Oklahoma City's largest exclusive Hobby Shop. Use Air Trails & Model Railroader for catalogs. 9:00 A.M.—6:30 P.M. (12-4 Sun.)
CAMPBELL'S MODEL AIR DEPOT
1133 NW 23rd Okla. City, Okla.

FLORIDA—TAMPA
Complete Modern Stock Planes, Engines, Ships, Trains Race Cars, Tools and Supplies Everything Needed
EDWARDS' HOBBIES
108 East Cass Street 26-2092

MISSOURI—KANSAS CITY
Model Airplane, Boat, Race Car, Railroad and Hobby Supplies. See our Big operating Train display.
NORTHEAST TOY & HOBBY CENTER
4825 Independence Ave. Be. 7849

NEW YORK—JAMAICA (3)
HOBBIES — THAT'S ALL! Regular Hours 9 a.m. to 7 p.m. 9 a.m. to 9 p.m. Mon. & Fri. 9 a.m. to 7 p.m. Saturdays Holiday Hours (Nov. to Feb.) 11 a.m. to 9 p.m. daily
JAMCO (Jamaica Co. Hobbies, Inc.)
90-04 168th St. Phone JA 3-9140

OREGON—PORTLAND
Complete lines of Planes-Engines-Boats Race Cars-Railroads-Vehicles and Handicraft Supplies 10 A.M. to 6 P.M. Weekdays Closed Sundays
VIC'S HOBBY SUPPLY
1730 N.E. 40th Ave. Garfield 3108

INDIANA—INDIANAPOLIS (19)
Model Planes, Trains, Race Cars, Motors and Motor Parts. Boat & Ship Models, Balsa Wood. 10:30 to 7 P.M. Daily
BOB STEELE HOBBY CENTER
1008 No. Emerson Ave. Irvington 1617

MISSOURI—PORTAGEVILLE
Model airplanes—motors—solid models. Everything for model airplane builders. Accessories for your every need.
South East Missouri's Finest
Hobby Center
Mosby Hardware Phone 21

NEW YORK—WHITE PLAINS
Complete Stock—Planes, motors, accessories. Boats—handicrafts. Lionel—American Flyer—H.O. trains. Open Mon. & Thurs. Eves.
WESTCHESTER HOBBIES
102 E. Post Road White Plains 9-7943

PENNSYLVANIA—PHILADELPHIA
HOBBY HEADQUARTERS
Complete stock of model airplanes, engines, parts, accessories, etc. Also ships—trains—autos—crafts
QUAKER CITY HOBBY SHOP
N.E. Cor. 6th & Market Sts. Lo 3-7465

LOUISIANA—NEW ORLEANS
Airplanes — Boats — Supplies TT-HO-S-O Railroad Open 9-5; Sat. 9-3
CRESS MODEL SHOPPE
1134 St. Charles Ave. Ra 4873

NEBRASKA—LINCOLN
Model Airplanes — Race Cars — Railroads — Boats — Handcrafts — Tools Repair Parts 9:00 to 5:30 & Thursday Evenings.
LINCOLN HOBBY SUPPLY
1123 P STREET 2-4692

NORTH CAROLINA—CHARLOTTE
Ask Anyone In the Carolinas It's
CHARLOTTE HOBBY CENTER
131 W. Fourth Phone 4-4188

WASHINGTON—SEATTLE
Good Service—Helpful Advice Complete Stock Planes—Boats—Cars—H O Trains
10-6 P.M. W-F 10-9 P.M.
BUZZ & DOUG'S HOBBY SHOP
701 E.Pike at Boylston Ea 8650

Safford's book "Model Control by Radio" ($1 at most large radio supply stores) very helpful.

Engine Operation Procedure . . . Since we are now located in a more or less out of the way spot, at least as far as model planes are concerned, and I have contracted to build and fly a control line stunt plane for my small son, I would very much appreciate your help with my present problem.

Briefly, while I have had some experience with building models they were all rubber powered so that as far as the gas engine is concerned I am very ignorant, in fact, I have never seen one of them in action. It is probably not surprising, therefore, that I have not been able to start my motor, an O&R .19.

To the best of my ability, I have followed the manufacturer's directions but the best I have achieved so far has been a run of about 2 seconds. Since the motor has a guarantee, I returned it to the factory who sent it back with a note "checked and found in running order." Attempting to start it on its return met with even less success than before sending it to the factory, and so in desperation I am writing you in hopes that you will be able to give some simple hints which will solve my problem and restore that light of confidence in my son's eyes.

It may be that you consider O&R engines hard to start, in which case I would go so far as to put it on the market and get whatever motor you would recommend in replacement. The plane will take up to a .23 motor.

P. Leckie-Ewing, Stantsead, Can.

• Your model engine probably is quite a puzzling thing since there are no local clubs or model fans around where you may obtain friendly advice. Don't be discouraged because your first engine doesn't start off with a roar on your first few attempts.

SUBSCRIBE TO AIR TRAILS

A wonderful gift to give or get . . . full year's subscription is only $3.50. Send check or money order to Air Trails Subscription Department, 304 E. 45th St., N.Y.C. 17. (Canada, $4.50; countries of Pan-American Union, $7; other, $10.)

FASTEST service in the south

complete line of model planes, boats, trains, race cars, crafts

ask for our weekly newsletter

LEITZSEY model distributors
P. O. Box 5221-FP Columbia, S. C.

If your Hobby is Planes
YOU NEED A Moody Kit

There's a Moody Kit of interchangeable precision small tools just perfect to complete your HOME or MEET emergency maintenance. They're made especially for model and hobby enthusiasts. The DR-6 Kit shown retails at $2.35. Ask to see the Moody Line at your local stores.

SEND FOR FREE BOOKLET
RETAILER INQUIRIES INVITED
Moody MACHINE PRODUCTS CO. INC.
36 DUDLEY STREET, PROVIDENCE 5, R. I.

ADVERTISERS' INDEX

June, 1952

Ace Products 64
Acme Model Eng. Co. 78
Aeronautical University 78
A-J Aircraft Co. 77
A & M Super Products 53
America's Hobby Center, Inc. 6, 7, 9
Arnold & Fox Engineering Co. 76
Atwood Mfg. 75
Austin-Craft Co. 72

Berkeley Models, Inc. 82
Buzz & Doug's Hobby Shop 79

Cal-Aero Technical Institute 8
Campbell's Model Air Depot 79
Charlotte Hobby Center 79
Cleveland Model & Supply Co. 66
Comet Model Hobby, Inc. 5
Consolidated Model Engineering Co. 70
Contest Craft Co. 77
Corr's 75
Crescent Model Shop 73
Cress Model Shoppe 79
Crosby's Hobby Centre 79

Dallas School of Aviation 56
Dealers Hobby Supply 78
deBolt Model Engineering Co. 55
Dooling Bros. 61
Dumas Products 77
Dyna-Model Products, Inc. 67

The E and H Stores 71
Edwards' Hobbies 79
Embry-Riddle School of Aviation 10
Enterprise Model Aircraft & Supply Co., Inc. 12, 13, 78

Fador Mfg. Co. 78
F-B Model Aircraft 63
Forster Bros. 52
Francisco Laboratories ..... 3rd Cover
Frontier Mfg. Co. 77

Good's Hobby Shop 79
Gotham Hobby Shop 81
Great Western Mfg. Co., Inc. 77
Grish Bros. 69
Paul K. Guillow 11

Harley-Davidson Motor Co. 52
Haw-Ki Hobby Supply Co. 70
Helicopters for Industry, Inc. 62
Henry Engineering Co. 60
Herkimer Tool & Model Works, Inc. ..... Back Cover
Hobby Decal Specialists 76

Ideal Models 75, 80
Indiana Technical College 81

Jamco (Jamaica Co. Hobbies, Inc.) 79
Joy Products 75

K & B Mfg. Co. ..... 2d Cover

Leitzsey Model Dist. 79
Lincoln Hobby Supply 79

Vernon C. Mac Nabb Co. 58
Master Modelcraft 68
Mercury Model Airplane Co. 73
Miniature Aircraft Corp. 81
Mod-Ad Agency, Inc. 6
Model Aeronautic Pubs. 63
Model Craft Hobbies, Ltd. 80
Model & Hobby Industry 78
Mod-Kraft Co. 81
Monarch Model Co. Inc. 72
Monogram Models 51
Moody Machine Products Co. Inc. 79
Mosby Hardware 79
Mutual Broadcasting System 68

Nassau Watch Co. 75
National Model Distributors 65
Northeast Hobby Dist. 78
Northeast Toy & Hobby Center 79
Northrop Aeronautical Institute 54

Pactra Chemical Co. 57
Pan American World Airways 18
Park Hobby Center 79
Parks College of Saint Louis University 3
Pico Model Co. 79
Plymouth Motor Corp. Div. Chrysler Motor Corp. 17
Polk's Model Craft Hobbies 74

Quaker City Hobby Shop 79

Radio Control Headquarters 76
Russell Bros. Products 67

Scientific Model Airplane Co. 59
Shevlin Mfg. Co. 62
Sid's Hobby Center 70
Sky Hobby, Inc. 73
Sparton School of Aeronautics 16
Speed-O-Lag Products Co. 61
Bob Steele Hobby Center 79
Sterling Models 65
Sullivan Products 64

Testor Chemical Co. 42, 43
Top Flite Models, Inc. 72
Tri-State College 73
Trost Modelcraft Hobbies 81

United States Army and United States Air Force Recruiting Service 15

Vic's Hobby Supply 79

Waldell Hobbies 79
Westchester Hobbies 79
Western Model Dist. 64
Whitfield Paper Works, Inc. 81

While every precaution is taken to insure accuracy, we cannot guarantee against the possibility of an occasional change or omission in the preparation of this June 1952 index.

CANADIAN DEALERS!

write for our

NEW CATALOGUE

44 Pages of the Best American, British and Canadian Hobby Merchandise

MODEL CRAFT HOBBIES LTD.

66 WELLINGTON ST. WEST, TORONTO, CANADA

All model engines on the market are of very elementary design. The following procedure may overcome your troubles.

Start out then by checking the fuel system. Connect a short piece of rubber tube to the needle valve and blow into the tube. Open the needle valve several turns and air should blow through the small jet hole and escape through the carburetor. Next close the needle valve while blowing till a slight reduction in the flow of air can be noticed. This places the needle valve near the correct setting for the engine to start. Next mount the engine on a test board with some bolts and connect a small fuel tank so the topmost fuel level will be ¼ inch below the needle valve, then connect the fuel line. Your engine should now be ready for a test run.

Fill the tank with an alcohol base glow fuel, preferably Ohlsson & Rice for your engine. Place your finger over the carburetor and turn the propeller two or three times to fill the fuel line. With a fuel pump or eye dropper place two or three drops of fuel on top of the piston through the exhaust port. Now connect the batteries to the glow plug and start flipping the engine. After the choke and prime, the engine is flooded or has too much fuel to produce an explosion. Continue to flip up to thirty or forty turns to suck air through the engine and dilute the excess fumes. When sufficient fuel has been evaporated a combustible mixture will develop in the cylinder with the correct proportion of air and fuel, and the engine should begin to pop and kick over in short bursts.

Next, the final needle valve adjustment must be found where the engine will continue running. Listen carefully to the engine during the burst which you have already described, to determine which way to turn the needle valve. If the needle valve is open too far the engine will produce a sputtering noise and stop due to excess fuel. If the needle valve is closed too far the engine will produce a sharp high-speed burst of power and die out quickly and evenly. If the engine stops lean, choke slightly before flipping again. If the engine stops rich with a sputtering noise, close the needle valve half a turn and start flipping again with no choke or prime.

With an hour or so of practice it should be possible to start the engine in a half a minute or less. Your Ohlsson & Rice engine is very popular in the U.S. and is considered one of the easiest model engines to start.

Russian Sukhoi . . . Is the Russian Sukhoi the same plane as the German FW-189 observation plane?

John Kaiser, Woodville, Miss.

● In our opinion the Russian Sukhoi is undoubtedly a copy of the FW-189.

Mach

(Continued from page 70)

sound. The ratio that has proved so handy in modern aeronautics had its genesis in the 1880's, some fifteen years before the Wright Brothers made their first flight.

Mach, who at the time was professor of physics at Prague University, and a Professor Salcher, of the Marine Academy in Fiume, carried out the experi-

IT'S NEW!
BUILD ONE TODAY
AQUA PAL
Skiff
Ideal
16 INCH
No. 1530
CAN BE POWERED WITH A TINY ELECTRIC MOTOR OR AN OUTBOARD MOTOR
Ideal is first again with the "Aqua Pal" Skiff. Completely prefabricated with die cut oar blades, panels, bow plates, seats, etc. Two molded balsa sides. Cast oar locks and horns. Step-by-step picture plan.
$1.50 COMPLETE
See your Dealer or Order direct. Add 25¢ for postage.
● Illustrated Catalog 10¢
IDEAL MODELS
24-26 WEST 19th ST., NEW YORK 11, N. Y.

ENGINEERING DEGREE

Graduates in Demand

27 MONTHS

• Speed-up training in Engineering — Aeronautical, Chemical, Civil, Electrical, Mechanical and Radio (inc. TV and Electronics). B.S. degree in 27 months. Frequent trips to outstanding industrial plants. Modern lab facilities.

Earn part or all of your expenses in this large industrial center. Low tuition.

If you are called into service, while still a student, you will be prepared for a specialized military job, AND can return to school without losing credits. Approved for veterans. Enter June, Sept., Dec. or March. Send for free catalog today.

INDIANA TECHNICAL COLLEGE
362 E. Washington Blvd., Fort Wayne 2, Ind.

TROST IS TOPS IN HOBBY LINES

EXPERIENCE 22 YEARS COUNTS

In addition to leading lines of Model Planes and Trains, TROST stocks many imported Toys, Leather Handicraft, Woodworking, Bead and Shell Craft, Woodburning, Textiles, Model Race Cars, and many other kinds of hobbycraft. Dealers write for complete A-Z list.

TROST
Modelcraft and Hobbies

3111 W. 63rd St. Chicago 29
PLANES-TRAINS-SHIPS-PARTS-SUPPLIES

SKY SAIL

WET or DRY it's easy to apply!

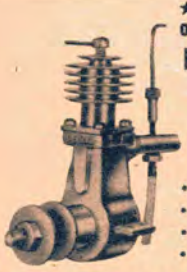
SKY SAIL the Sensational model airplane covering is stocked in a size and weight for every model, and in BRILLIANT COLORS TOO!

Write us for free sample booklet

"Win With Sky Sail"

WHITFIELD PAPER WORKS, INC.
Est. 1869
409 Pearl St., New York 38, N. Y.

★ ★ ★ ★ ★ ★



Our 488th Advertisement!

REAL DIESEL ENGINE!

$2.95

You can't beat this price!

- Ideal for planes, boats, midget cars
- Actually runs at 7500 RPM, produces 1/7 HP
- Height a full 3½ inches; weight 5 ounces
- Comes completely assembled, ready for operation

MAYBE WE'RE CRAZY, giving away a precision diesel engine, complete with cylinder and piston, carburetor, crankshaft, connecting rod, etc. for ONLY $2.95. But we're selling thousands of DEEZILS all over the world, and that keeps our production costs down. DEEZIL is streamlined, compact, rugged. Starts quickly, easy to install, runs for years! Fast delivery if you ORDER DEEZIL today!

SEND $2.95 plus 25¢ postage

GOTHAM HOBBY CORP., Dept. A
107 E. 126th St., New York 35, N. Y.

ments with cannon shells. With the assistance of the Royal Austrian Navy, which provided the gunfire at Fiume, the scientists took some eighty photographs of shells in flight. Fired at different muzzle velocities past metal plates of a condenser attached to a Leyden jar (or battery), the shells took their own high-speed photographs by causing the discharge of sparks.

In discussing the visible shock waves produced by the shells in these early Schlieren photographs, Mach commented that sound waves from the end of a rod moving through fluid would "have as an envelope a cone." From this analysis came the term "Mach angle," which scientists bandied about in their papers until it came out as Mach number about twenty years ago.

Although academic, Mach's life was not a quiet one. A man of strong convictions, he expressed his opinions vigorously in feuding with various schools of philosophy and physics. His own ideas on the nature of space, time and motion were the basis of a movement known as "positivism"; it is said that Mach's philosophy influenced Einstein.

His exasperated schoolteachers believed him a "slow" boy, and it was not until his father, Johann, took him in hand that he began making progress in mathematics and physics. Mach's father, who had been a tutor, whetted the boy's interest in science with simple experiments at home. One demonstration especially intrigued the boy. It consisted of pushing inverted tumblers into a tub of water to show the pressure of the air captured in the glasses. So began a study which included, in 1889, the first photographs of supersonic air jets.

Mach would believe that today his name is recalled in connection with work that was comparatively trifling. But the high-speed aircraft and rockets of this second half of the twentieth century make it certain that his name will be used more and more frequently. That is true, at least, in the English-speaking world. Nor does Mach lack the Russian disapproval which usually indicates a scientist's preeminence in his field. In Russia the term is often "Bairstow number," (Professor Leonard Bairstow, English aerodynamicist) instead of Mach number. One of the persons with whom Mach differed philosophically, you see, was Nikolai Lenin.—UNITED AIRCRAFT CORP. "BEE-HIVE"

MR. DEALER— NEW, HOT ITEMS NOW IN STOCK. ORDER TODAY!

mod Kraff Co
840 Union St., New Orleans 12, La.

CURTISS P40F GAS MODEL

New Improved Model

48" Span. Free flight or U Control

Improved with new 2¾" alum. spinner and 3" Veco alum. disk semi-pneumatic rubber wheels. Planked type body, parts printed on balsa, and all parts. Set **$9.00**

REPUBLIC P47D GAS MODEL

35¾" span, ⅞" scale. Length 30½". One-piece moulded, clear plexiglas cockpit enclosure. 2½" scale alum. disk rubber wheels. Body planking full size plans. Uses B or C motor. Set **$5.95**

9' TAYLOR CRAFT GAS MODEL

9 foot Span. Can use Radio control. Set has 36 ready cut wing ribs, cut plywood body formers, 16" carved prop, tail wheel unit, 2 full size plans, printed balsa, silkspan, etc. Uses "C" type motor, single, twin, or 4 cyl. motor. Set without motor or wheels, postpaid..... **$17.50**

Extra pair of 4½" airwheels, $3.00

VOUGHT F2G GAS MODEL

41" span. U Control B or C Motor. Scale model of 1949 Thompson Trophy winner. Set has 2½" scale rubber tired alum. disk wheels 4¼" aluminum cowl, body planking, moulded, clear plexiglas cockpit enclosure, plastic spinner, etc. This is one of the finest equipped models in the world. Const. set **$6.75**

Stearman PT17

Set has 2½" celluloid motor, plastic prop, etc. 23" span. Const. set **$2.95**

N. American B-25

33½" span. ⅛" scale. Const. set. Rubber driven... **$4.00**

Grumman-F3F1

32" span. 1" scale. Const. set. Rubber driven... **$3.75**

Elf 4-Cyl. Gas Motor

Elf 1-3 h.p. 4¼" wide. Price **$49.50**

BOEING PT17 GAS

45" Span. Can use 5 cyl. M5 motor to scale or B or C type motor. U control. Set has scale rubber wheels and all spec. parts, ready cut wing ribs, tail wheel unit and wheel. Const. set.. **$9.95**

Add 25c for postage. Catalog—10c coin

MINIATURE AIRCRAFT CORP.

83 Low Terrace, Staten Island 1, N. Y.

Berkeley's "SUPER AEROTROL"

For Citizen Service Operation . . .

27 m.c. Crystal Control

RADIO CONTROL

NO OPERATORS LICENSE REQUIRED!

The First Transmitter You Can *Build, Operate,* and *Maintain* Yourself!

CRYSTAL-CONTROLLED "SUPER AEROTROL"

SAVES MONEY—SAVES TIME . . . (No need to return to factory for minor adjustments and repairs.)

- Backed by the most experienced builders of radio control equipment (over 4,000 Aerotrol Units to date).
- Proven by dozens of Contest Winnings.
- First to fly from dawn-to-dusk, landing only to refuel.
- Sold and serviced through local Hobbycraft Dealers.
- Super-Aerotrol has been tested under the Academy of Model Aeronautics special license in various parts of the country for nearly a full year. In addition "Super-Aerotrol" has been sent to England for tests on their license-free band. Here is what the experts say:

BILL WINTER—says:

"Put together an Aerotrol Kit . . . the results were startling . . . worked right off the bat."

PETER CHINN—technical writer for "MODEL AIRCRAFT" of "England" says:

"In our experience the only thyratron set reasonably free from trouble . . . the Aerotrol has always been known for its good performance . . . the (27 mc.) equipment was tested on its arrival from the United States and found to work perfectly."

WARREN BARTLETT— test flying Super-Aerotrol on Academy of Model Aeronautics special license KG2XDA says:

"First flights peachy . . . receiver checked out perfectly adjusted."

Still Available! **DE-Aerotrol** (for 52 mc.) Complete Kit—**$22.95**

Includes Transmitter, Receiver, Escapement (less batteries and tubes).

XFG-1	Receiver Tube	$3.50
3A5	Transmitter Tube	3.50
DE-105K	Escapement Kit	2.95

DUST-CORE TUNED Super Aerotrol RECEIVER

- Operates on either 27.2 or 52 mc.
- NEW super-sensitive relay.
- NEW "locked-channel" dust-core tuning. (We have shipped the sample receivers across the country and to Europe without the frequency changing!
- Light in Weight, 2¾ oz. less batteries.
- Simple super-regenerator circuit, 100% dependable.

Kit includes: Finished, tested sensitive relay; finished dust-core tuner; drilled bakelite base with condensers and eyelets attached; all electrical components, condensers, resistors, coils, chokes and potentiometer; all necessary contacts, and color-coded wiring. Can be assembled in less than two hours. Complete building and operating instructions are included—

Kit— **$13.95**

Crystal-Controlled Super Aerotrol TRANSMITTER

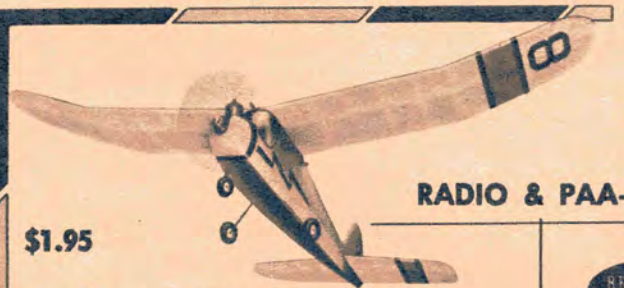
- Operates on 27.255 mc.
- Completely portable—Self contained—No separate antenna—No external Batteries!
- Weighs 3.5 lbs. complete!

Kit includes all necessary parts (except tube and batteries): Precision Ground Crystal; Painted Metal Cabinet; Finished Sectional Antenna; stamped and formed chassis with all holes punched; all necessary components, resistors, condensers, coils and chokes; color coded wiring. Can be assembled in less than two hours. Complete building and operating instructions are included—

Kit— **$21.95**

*Prices and specifications subject to change.

RADIO & PAA-Load Designs . . .



$1.95

BRIGADIER "R. C.-38"

For .035 to .099 Engines—38" Wingspan

This completely re-designed "½ A—A" Free-Flight may be flown as a Radio Control job, a PAA-Load model, or a free-flight Sport Flyer. Plans include Radio Control and PAA-Load installation details. The kit is pre-fabricated with formed gear, die-cut balsa and plywood parts, hardware and notched trailing edges.

BERKELEY Construction Kit

BUCCANEER "B" SPECIAL

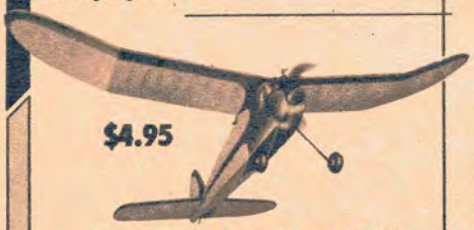
For .23 to .36 Engines—56" Wingspan **$3.95**

BUCCANEER "C" SPECIAL

For .45 to .65 Engines—72" Wingspan **$7.95**

Perfect for sport and radio-control flying, this famous model features wing slots to prevent stalling, and a spin arresting tail design. This realistic rugged flyer has won numerous contests, and a place in modeldom's Hall of Fame.

$10.95



$4.95

"SUPER BRIGADIER"

58" Wingspan—For .19 to .36 Engines

Especially designed by Henry Struck for Radio Control and PAA-Load flying. Plans show details for installation of equipment. Pre-fabricated.

"SUPER BUCCANEER"

For .60 to 1.20 Engines—90" Wingspan

With over 200 contest prizes under its belt, this famous 7½ foot craft is perfect for radio control flying. Features a modified Eiffel airfoil section, 8.3 sq. feet of wing area, and a multispar wing. Ample cabin space for radio work. Weighs 5½ pounds.

$2.50

½A PAA-Load "BOOTSTRAPS"

40" Wingspan—For .035 to .049 Engines

Designed by Henry Struck for sport and PAA-Load contests, this easily built pre-fabricated kit features "Auto-Semble" construction.

If no local dealer is convenient, mail orders will be filled by Berkeley Models Supplies, Dept. AT., West Hempstead, N. Y. Please include 25¢ packing & postage.

SOLD THRU

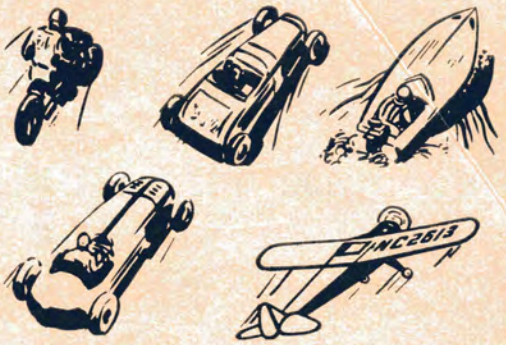
BERKELEY

DEALERS & DISTRIBUTORS

Berkeley's 1952 CATALOG . . .

Completely revised — up to date! Contains complete line of kits, Supplies, Accessories, Information. **25¢**

• Would YOU Toss GUNK in YOUR FUEL?



If You Pay 70¢ to 85¢

per pint for model fuel, you should get and insist on the quality, purity and trouble-free control features found ONLY in Francisco fuels.

You'd Be Amazed

if you could see the impurities we remove from our RAW MATERIALS!

FRANCISCO FUEL!

THE **ONLY** **FUEL** with volatane control!

THE **ONLY** **FUEL** processed to avoid spoilage!

THE **ONLY** **FUEL** which is truly acclimatized!

THE **ONLY** **FUEL** based on 30 years' experience!

If you **do not** buy fuel with these impurities removed it's about like adding them yourself—just to see how soon you can wear out your engine! Or, how many races you can lose! Our processed fuels and oils show decrease in engine wear up to 80%. Raw fuel mixtures on the market show four times more impurities and deterioration rate than our lowest priced fuel. Glance at this LABORATORY REPORT and you'll see why FRANCISCO is the FUEL of CHAMPIONS.

LABORATORY REPORT

DETRIMENT IN EXHAUST per c UNIT TESTS:	FRANCISCO FUELS	PREPARED RAW FUELS No. 1	No. 2	No. 3
Carbon Dioxide . . .	1.9 lb.	2.8	3.1	3.3
Nitrogen	6.9 lb.	11.7	10.2	9.4
Water Condensed . .	1.21	1.5	1.75	2.15
Residue at 210° F Grams/100 ml: . . .	21.63	24.99	23.68	26.58
Sediment Centrifuge %:	trace	.3	.5	8.0

Most any fuel will run an engine—but "How will it perform?" How much carbon will it form? How soon will it deteriorate? Will it shorten the life of your engine? Our exclusive "gallon by gallon" processing is slow, tedious and exacting. We do it for the protection of you and your engine—and our reputation. Insist on processed FRANCISCO fuels for Purity, Volatane Control (Combustion efficiency) and Compression Rated Combustion control. IT COSTS NO MORE!

FUEL OF THE CHAMPIONS

From the World's Best Equipped Racing Fuel Laboratories

There is a specially processed FRANCISCO FUEL for every engine size, type and operation requirement. Ask your dealer for the one designed for your engine. **Also Treated Degummed Castor Oil Concentrates.**

THE MOST RESPECTED FUEL IN THE WORLD

FRANCISCO LABORATORIES

FIRST • LARGEST • BEST EQUIPPED

3015 Glendale Blvd. · Los Angeles 39, California

SAY OK for... TOPS in VALUE and TOPS in PERFORMANCE

OK CUB .049 COMBINATION PACKAGE

A complete power plant with the .049 Cub only **$5.75**

Buy an OK Cub Combination Package in any of four displacements and enjoy tops in power, performance and value. Here is the complete power plant for your plane at a price. Each package contains assembled engine, propeller, and fuel tank.

Cub .039	$4.95
Cub .049	5.75
Cub .074	6.75
Cub .099	7.75

Get Faster Starts, Better Power-Fuel Ratio. Maximum Engine Protection with

OK GLOW FUEL

Compounded especially for OK engines and engines of comparable compression ratios, OK Glow Fuel has a high methanol base heavily fortified with nitrates. Doesn't corrode, gum or varnish. Ideal for breaking in glow-plug engines. Has proved its championship qualities over a wide range of climatic conditions.

FULL PINT 85c

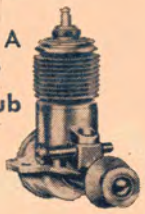
Easy to Start, Hard to Burn Out

OK GLOW PLUGS

Their superior platinum glow element assures quicker starting, faster acceleration, higher speeds. Outlasts ordinary plug. In two sizes, ¼-32 long and ¼-32 short for all OK and other engines **59c**

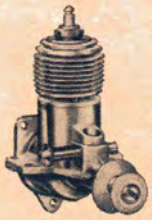
Greatest power output of any ½ A class engine

"OK" .049 Cub **$5.25**



Powerful Class A Performance

"OK" .099 Cub **$6.95**



Outstanding for stunt and speed flights

"OK" .074 Cub **$5.95**

"OK" .049 POWER KIT $4.95

Assemble it yourself and save $1.20 on the price. More — you learn your engine from the inside out . . . know its precision fits . . . see what makes it run.

SEE YOUR DEALER . . . OR WRITE US DIRECT

HERKIMER TOOL & MODEL WORKS

76 Harter Street Herkimer, N. Y.

Manufacturers of Famous "OK" CO_2 • "OK" Bantam • "OK" Hothead • "OK" Mohawk Chief • "OK" Super 60 • "OK" Twin